# Drying Tumblers

## 30 Pound Capacity (28" Wide)

Refer to Page 5 for Model Numbers

Service

Alliance Laundry Systems

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# Section 1
# Safety Information

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

**⚠ DANGER**

Danger indicates the presence of a hazard that **will** cause **severe** personal injury, death, or substantial property damage if the danger is ignored.

**⚠ WARNING**

Warning indicates the presence of a hazard that **can** cause **severe** personal injury, death, or substantial property damage if the warning is ignored.

**⚠ CAUTION**

Caution indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage if the caution is ignored.

Additional precautionary statements ("IMPORTANT" and "NOTE") are followed by specific instructions.

**IMPORTANT**

The word "IMPORTANT" is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

**NOTE**

The word "NOTE" is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

In the interest of safety, some general precautions relating to the operation of this machine follow.

**WARNING**

- **Failure to install, maintain, and/or operate this product according to the manufacturer's instructions may result in conditions which can produce serious injury, death and/or property damage.**
- **Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and that you understand and have the skills to carry out.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury, or death.**

W006R1


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**IMPORTANT INFORMATION: During the lifetime of your tumbler, it may require service. The information contained in this manual was written and is intended for use by qualified service technicians who are familiar with the safety procedures required in the repair of your tumbler, and who are equipped with the proper tools and testing equipment.**

## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W240

## WARNING

**Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you, or the inexperienced person making such repairs, to the risk of serious injury, electrical shock, or death.**

W007

## CAUTION

**If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.**

W008

**NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into this tumbler. These factors MUST BE supplied by the person(s) installing, maintaining or operating the tumbler.**

Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

## Locating An Authorized Service Person:

**Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.**

**Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.**


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# Section 2
# Introduction

## Model Identification

Information in this manual is applicable to these tumbler models:

| | | |
|---|---|---|
| DCB30XG | JCB30WE | SCB30WE |
| DTB30XG | JCB30XG | SCB30XG |
| DTB30WE | JT30WE | ST30WE |
| DTB30WG | JT30XG | ST30WG |
| | JTB30XG | ST30XG |
| | | STB30XG |


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# Safety Warnings and Decals

SAFETY WARNINGS and decals have been provided in key locations to remind you of important precautions for the safe operation and maintenance of your tumbler. Please take the time to review these warnings before proceeding with service work.

All decals have been designed and applied to withstand washing and cleaning. Decals should be checked periodically to be sure they have not been damaged, removed, or painted. Refer to Parts Manual for ordering replacement decals.

# Safety Precautions for Servicing Tumblers

- **Disconnect electrical service.**
- **Shut off supply gas valve before servicing gas components.**
- **Control panel and access panel MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Use soap suds to check all pipe connections for gas leaks. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!**
- **Chain guard MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Belt guard MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Contactor box cover MUST be reinstalled after inspection or servicing of electric and/or reversing tumbler is completed.**
- **Loading door switch MUST be operational before putting tumbler into service.**
- **Junction box cover MUST be reinstalled after inspection or servicing of tumbler is completed.**


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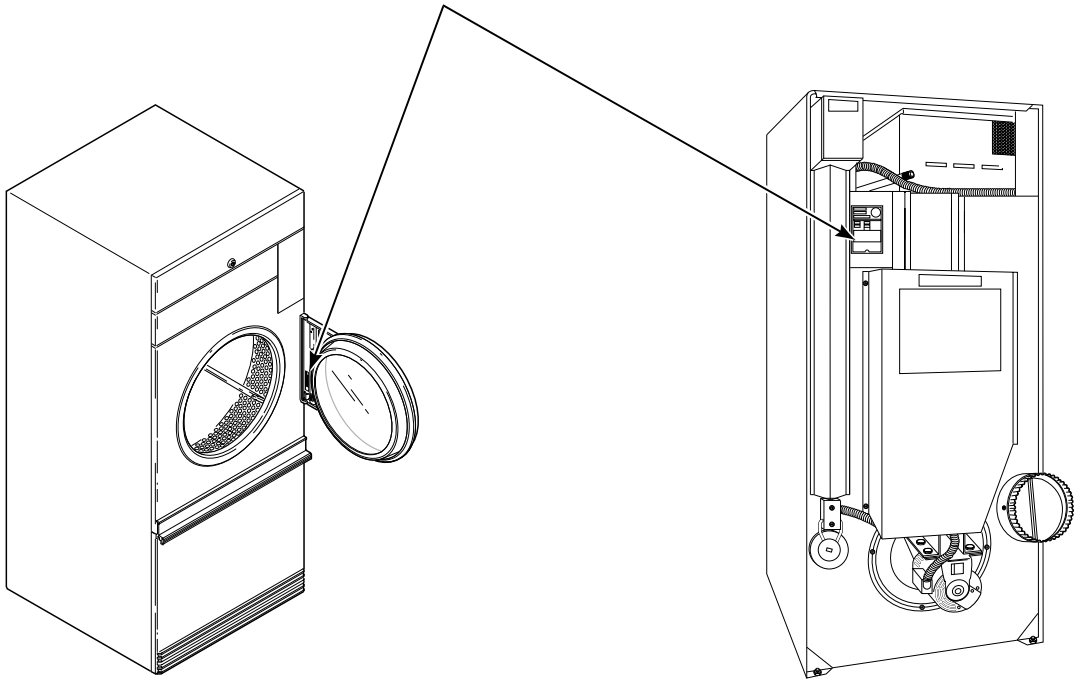
# Customer Service

If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name and address of the nearest authorized parts distributor.

For technical assistance, call (920) 748-3121.

# Nameplate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on nameplate(s) as shown.



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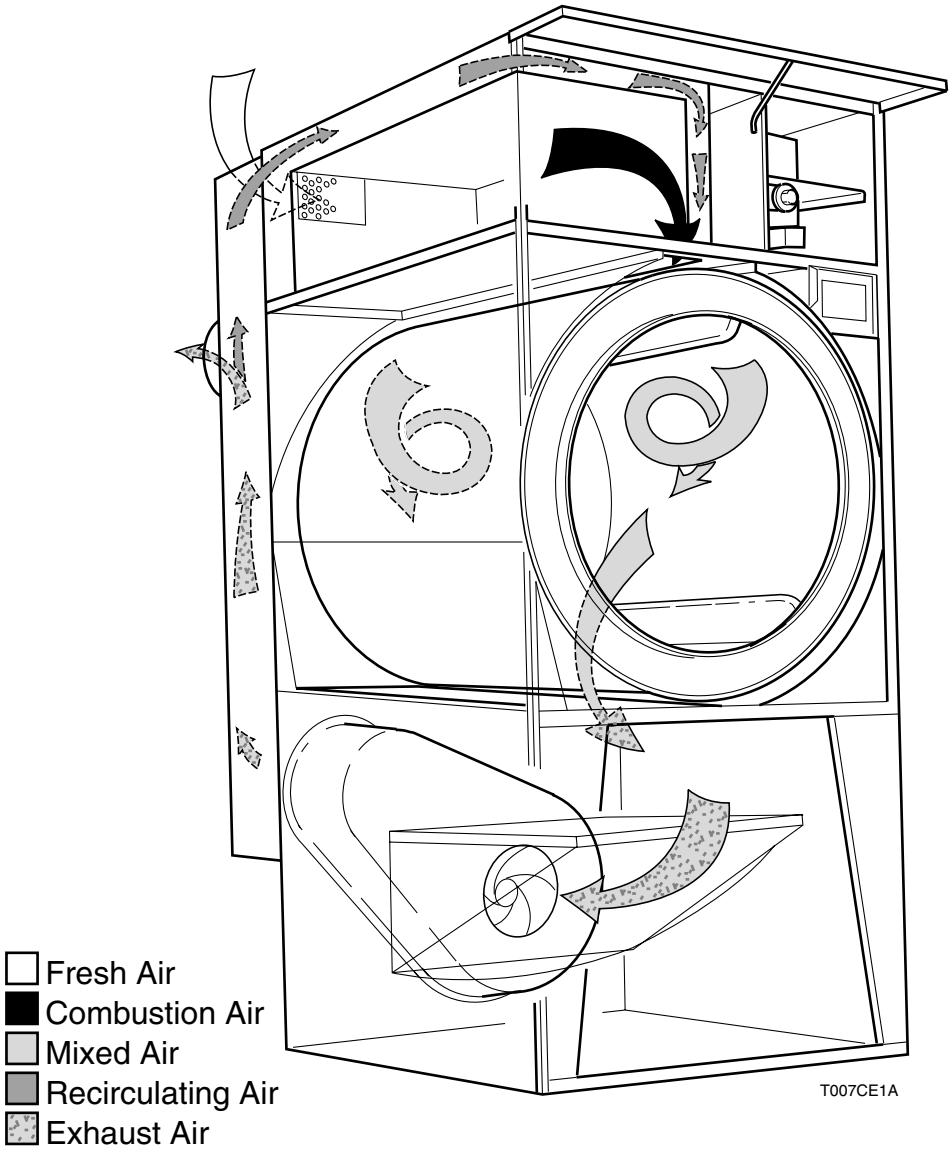
# How Your Drying Tumbler Works




The drying tumbler uses heat, air and movement to dry loads of laundry.

When the motor is started, the exhaust fan pulls fresh air in through the air intake and over the heat source (burner flame for gas and heating element for electric).

The heated air moves into the cylinder, where it is circulated through the laundry by the tumbling action of the cylinder.

The air then passes through the lint filter, exhaust fan, and is vented to the outdoors.

**NOTE: In Energy Saver Models, some of the exhaust air is recirculated. Refer to illustration above.**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# Section 3
# Troubleshooting

## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**IMPORTANT: Refer to appropriate wiring diagram for aid in testing tumbler components.**

### 1. MOTOR DOES NOT START

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Electrical power off or fuses blown. | • Check power supply, or replace fuses. |
| Loading door not closed or inoperative door switch. | • Close door, or test switch and replace if inoperative. |
| Door switch improperly adjusted. | • Refer to ***Adjustment*** Section in this manual for door switch adjustment. |
| Trunnion shaft assembly binding in trunnion housing bearings. | • Replace trunnion housing bearings. |
| Start circuit not completed. | • Press start switch, or test switch and replace if inoperative. |
| Idler shaft binding in idler housing bearings. | • Replace bearings. |
| Inoperative motor. | • Have motor tested and replace if inoperative. |
| Non-Metered Models: Timer improperly set. | • Turn drying timer clockwise to desired setting. |
| Non-Metered Models: Inoperative timer. | • Test timer and replace if inoperative. |
| Metered Models: Improper coins inserted in accumulator. | • Check that proper coins are inserted. |
| Metered Models: Accumulator knob improperly set after coins were inserted. | • Turn knob clockwise to its full limit of travel. |
| Metered Models: Inoperative run switch (accumulator). | • Test run switch and replace if inoperative. |
| Broken, loose, or incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |


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- **Close steam valve to steam tumbler before servicing.**
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W002

### 2. MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Incorrect voltage. | • Refer to the ***Installation Instructions*** (supplied with tumbler) for electrical requirements. |
| Clothes load too large. | • Remove part of load. |
| Clothes cylinder is binding. | • Check cylinder for binding. Refer to ***Adjustment*** Section in this manual for cylinder adjustment. |
| Inadequate wiring. | • Check with local power company to ensure that wiring is adequate. |
| Inadequate make-up air. | • Refer to ***Installation Instructions*** (supplied with tumbler) for make-up air requirements. |
| Poor housekeeping. | • Clean lint accumulation on and around the motor. |
| Broken, loose, or incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |

### 3. MOTOR RUNS BUT CYLINDER DOES NOT TURN

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Motor drive pulley loose. | • Tighten setscrews. |
| Sheave loose. | • Tighten setscrews. |
| Broken or loose belt. | • Replace or adjust belt. |
| Broken or loose drive chain. | • Replace or adjust chain. |
| Cylinder is binding. | • Check cylinder for binding. Refer to ***Adjustment*** Section in this manual for proper cylinder adjustment. |

### 4. MOTOR DOES NOT STOP

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Inoperative door switch or switch is out-of-adjustment. | • Test switch and replace if inoperative. Refer to ***Adjustment*** Section in this manual for proper switch adjustment. |
| Non-Metered Models: Inoperative timer. | • Test timer and replace if inoperative. |
| Metered Models: Inoperative accumulator. | • Test accumulator and replace if inoperative. |
| Incorrect wiring. | • Refer to wiring diagram located on the back of tumbler. |


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 5. HEATING ELEMENT DOES NOT HEAT OR BURNER DOES NOT IGNITE

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Improper or inadequate exhaust system. | • Refer to the ***Installation Instructions*** (supplied with tumbler) for exhaust system requirements. |
| Blown fuses or tripped circuit breakers. | • Check fuses or circuit breakers. |
| Drying selector set in the “cool-down” portion of the cycle. | • Reset switch or test switch and replace if necessary. |
| Inoperative thermostat. | • Test thermostat and replace if inoperative. |
| Electric Models:<br>Inoperative heating element(s). | • Replace element(s). |
| Gas Models:<br>Insufficient gas supply. | • Open partially closed gas shut-off valve, or correct low gas pressure. Check manifold pressure and adjust to pressure specified on rating plate. If pressure cannot be obtained, have gas supplier check main pressure. |
| Gas Models:<br>Incorrect orifices. | • Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices. |
| Gas Models:<br>(Glow Bar Ignition and Spark Ignition)<br>Inoperative gas valve coils. | • Test coils and replace if inoperative. |
| Gas Models: (Glow Bar Ignition)<br>Inoperative igniter | • Test igniter and replace if inoperative. |
| Gas Models: (Glow Bar Ignition)<br>Inoperative flame sensor. | • Test flame sensor and replace if inoperative. |
| Gas and Electric Models:<br>Inoperative high limit thermostat. | • Test thermostat and replace if inoperative. |
| Timer improperly set or inoperative. | • Check and reset timer, or test timer and replace if inoperative. |
| Centrifugal switch in motor inoperative. | • Replace centrifugal switch. |

(continued on next page)


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 5. HEATING ELEMENT DOES NOT HEAT OR BURNER DOES NOT IGNITE *(continued)*

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Inoperative air flow switch | • Clean lint compartment after every eight hour shift. |
| | • Check back draft damper for foreign objects, lint accumulation, or other causes that may prevent damper from opening. |
| | • Check ductwork for lint build-up. Refer to ***Installation Instructions*** (supplied with tumbler) to ensure that ductwork and make-up air openings are sized adequately. |
| | • Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen over in winter. Never install a screen over the exhaust outlet. |
| | • Vacuum within the tumbler drops to .09 inches water column, or less, for normal operation of tumbler, vacuum reading (in water column inches) should range between .15 and .3. Vacuum reading can be made with a vacuum 4-gauge by removing a sheet metal screw in the front panel of tumbler, and inserting the rubber tube of the vacuum gauge into screw opening. |
| Airflow switch out of adjustment. | • Refer to ***Adjustment*** Section in this manual for airflow switch adjustment. |
| Lint door panel not closed properly. | • Unlock and open lint door panel, place lint door and panel back on tumbler (ensuring a tight fit) then lock. |
| Broken, loose, or incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |

### 6. IGNITER DOES NOT GLOW (GAS SUPPLY SUFFICIENT) (Gas Models – Glow-bar Ignition)

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| No electrical power to leads on gas valve. | • Refer to wiring diagram located on back of tumbler to check for electrical circuit. |
| Flame sensor failed with contacts open. | • Replace flame sensor. |
| Igniter is broken or open. | • Replace glow bar igniter. |
| No circuit for burner operation. | • Tumbler is not calling for heat, check the heat circuit to the ignition system. |


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## WARNING

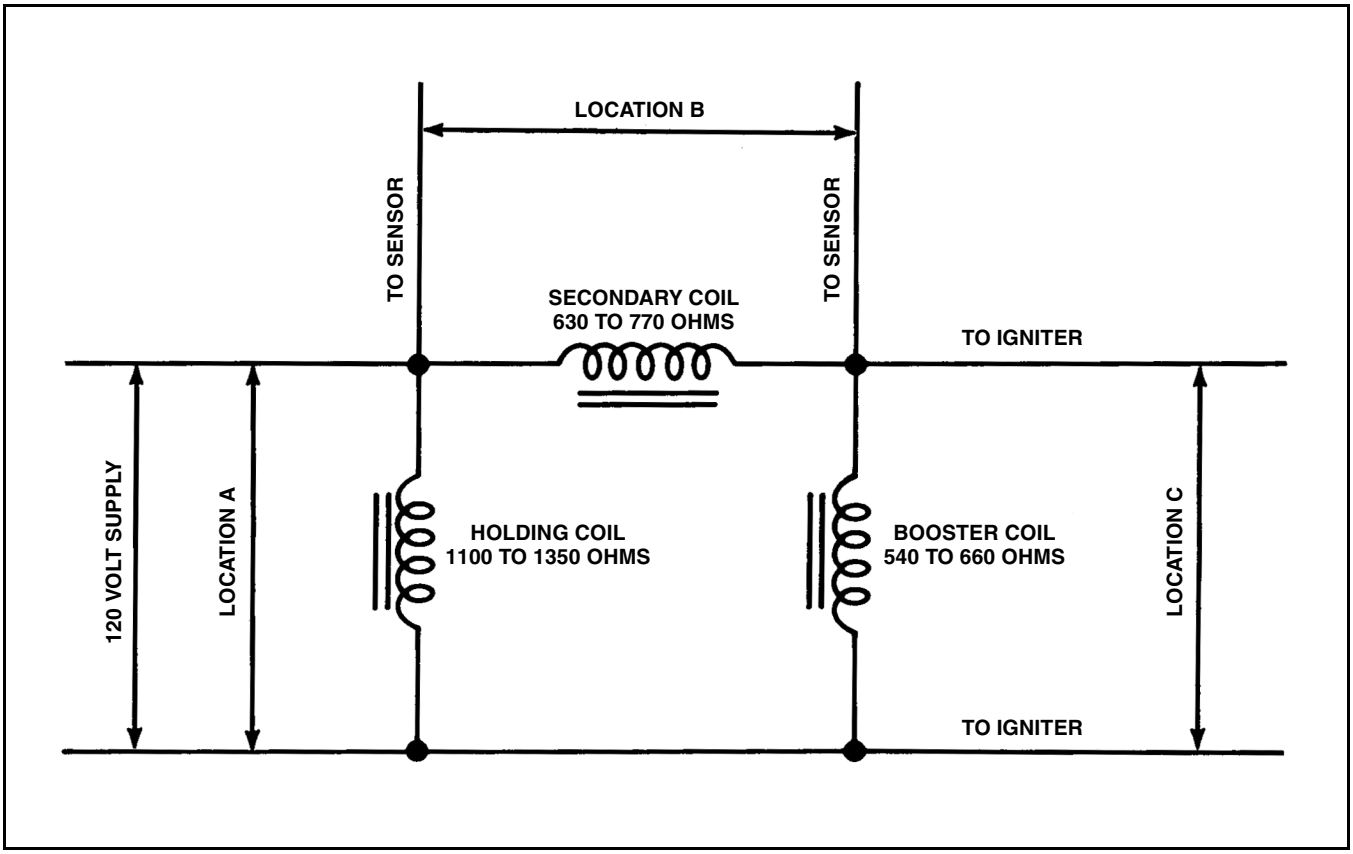
**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 7. IGNITER GLOWS, FLAME SENSOR OPENS BUT NO IGNITION

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Insufficient gas supply. | • Check gas supply and pressure. |
| No gas flow through gas valve. | • Check coil set and replace if inoperative. See NOTE below. |

**NOTE: Use a volt-ohm meter to check gas valve coils. Disconnect electrical power to tumbler. Remove control panel assembly. Disconnect gas valve wires at disconnect block and remove wires from igniter and flame sensor. BE SURE THAT NONE OF THE WIRE ENDS ARE TOUCHING ONE ANOTHER. Set test meter to read Ohms. Place meter probes on location "A" (black and white, 120 Volt supply wires). If reading is 567 to 694 Ohms, all of the coils are okay. If reading is 1100 to 1430 Ohms, then move meter probes to location "B" (two black wires to sensor). If reading is 1640 to 2010 Ohms, the secondary coil is open and coil must be replaced. If reading is 630 to 770 Ohms, then move meter probes to location "C" (2 red wires to igniter). If reading is 540 to 660 Ohms, holding coil is open and coil must be replaced. If reading is 1730 to 2120 Ohms, booster coil is open and coil must be replaced.**





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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 8. BURNER IGNITES AND GOES OUT REPEATEDLY (Gas Models – Glow-Bar Ignition)

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Burner heat not holding flame sensor contacts open. | • Replace flame sensor. |
| Insufficient gas pressure. | • Check gas supply and pressure. |
| Inoperative high limit thermostat. | • Test thermostat and replace if inoperative. |
| Improper or inadequate exhaust system. | • Refer to ***Installation Instructions*** (supplied with tumbler) for exhaust requirements. |
| Improper orifices. | • Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices. |
| Improperly adjusted burner flame. | • Refer to ***Adjustment*** Section in this manual for burner flame adjustment. |
| Broken, loose or incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |

### 9. HEATING ELEMENT OR BURNER SHUTS-OFF PREMATURELY

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Improper or inadequate exhaust system. | • Refer to ***Installation Instructions*** (supplied with tumbler) for exhaust requirements. |
| Gas Models:<br>Insufficient gas supply. | • Open partially closed gas shut-off valve, or correct low pressure. |
| Gas Models:<br>Tumbler not properly equipped for type of gas used. | • Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices. |
| Gas Models:<br>Improperly adjusted burner flame. | • Refer to ***Adjustment*** Section in this manual for burner flame adjustment. |
| Gas Models: (Glow-Bar Ignition)<br>Flame sensor contacts opening prematurely. | • Replace flame sensor. |
| Cycling off on limit thermostat. | • Refer to *Paragraph 10*. |
| Broken, loose or incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |


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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 10. HEATING ELEMENT OR BURNER REPEATEDLY CYCLES OFF ON HIGH LIMIT THERMOSTAT

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| External exhaust system is longer than recommended. | • Refer to ***Installation Instructions*** (supplied with tumbler) for exhaust requirements. |
| Clogged lint screen. | • Remove screen and clean. Lint screen and compartment should be cleaned after every eight hour shift. |
| Lint in internal tumbler ductwork. | • Disassemble tumbler ductwork and clean. |
| Lint in external exhaust system. | • Disassemble exhaust system and clean. |
| High limit thermostat cycling at too low a temperature. | • Replace thermostat. |
| Lint door panel not closed properly. | • Unlock and remove lint door panel — place lint door panel back on tumbler (ensuring a tight fit) then lock. |

### 11. HEATING ELEMENT OR BURNER DOES NOT SHUT-OFF

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Motor does not stop. | • Refer to *Paragraph 4*. |
| Gas Models:<br>Impurities on gas valve seat, preventing valve from closing. | • Replace gas valve. |
| Non-Metered Models: Inoperative drying timer. | • Replace timer. |
| Incorrect wiring. | • Refer to wiring diagram located on back of tumbler. |


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**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 12. CLOTHES DO NOT DRY

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Heating element does not heat or burner does not ignite. | • Refer to *Paragraph 5*. |
| Too much water in articles being dried. | • Remove excess water. |
| Clothes load too large. | • Remove part of load. Thirty pounds dry weight (cotton load) is a normal load. |
| Improper or inadequate exhaust system. | • Refer to ***Installation Instructions*** (supplied with tumbler) for exhaust requirements. |
| Heating element or burner shuts off prematurely. | • Refer to *Paragraph 9*. |
| Drying timer improperly set. | • Set selector for higher setting. |
| Incorrect voltage. | • Refer to ***Installation Instructions*** (supplied with tumbler) for electrical requirements. |
| Inadequate make-up air. | • Refer to ***Installation Instructions*** (supplied with tumbler) for make-up air requirements. |

### 13. TUMBLER OVERHEATING

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Gas Models:<br>Incorrect main burner orifices. | • Replace orifices. |
| Gas Models:<br>Gas pressure too high. | • Adjust gas pressure as specified on rating plate. |
| Inadequate make-up air. | • Refer to ***Installation Instructions*** (supplied with tumbler) for make-up air requirements. |
| Lint accumulation. | • Remove lint. |
| Restricted or inadequate exhaust system. | • Remove obstruction or lint build-up from exhaust ductwork. Refer to the ***Installation Instructions*** (supplied with tumbler) for exhaust system requirements. |
| Inoperative thermostat. | • Replace thermostat. |


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 14. BURNERS NOT BURNING PROPERLY (Gas Models)

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Burner air shutters incorrectly adjusted. | • Refer to ***Adjustment*** Section in this manual for proper flame adjustment. |
| Dirt in burners. | • Disassemble burners and blow out the dirt. |
| Gas pressure too high. | • Check rating plate on back of the tumbler for correct gas pressure. |
| Incorrect orifices. | • Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices. |
| Restricted or blocked exhaust duct. | • Disassemble and clean exhaust system. |
| Airflow switch not functioning properly. | • Replace airflow switch. |

### 15. CYLINDER DOOR OPENS DURING OPERATION

| POSSIBLE CAUSE | TO CORRECT |
|---|---|
| Door strike improperly adjusted. | • Refer to ***Adjustment*** Section in this manual for door strike adjustment. |
| Tumbler improperly leveled. | • Refer to ***Adjustment*** Section in this manual for leveling leg adjustment. |


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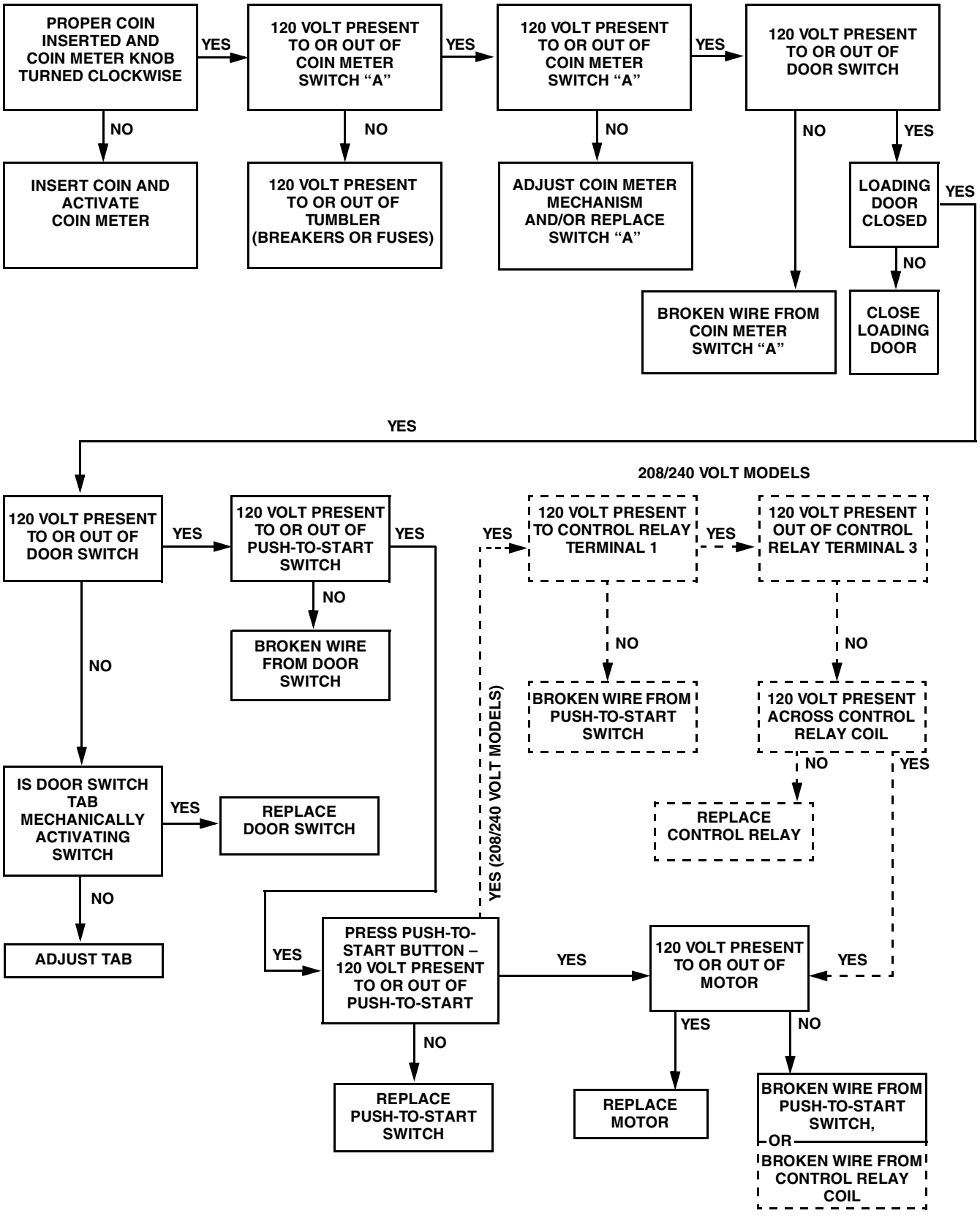
# Nonmicroprocessor Models

## 16. TUMBLER WILL NOT START (METERED MODELS)





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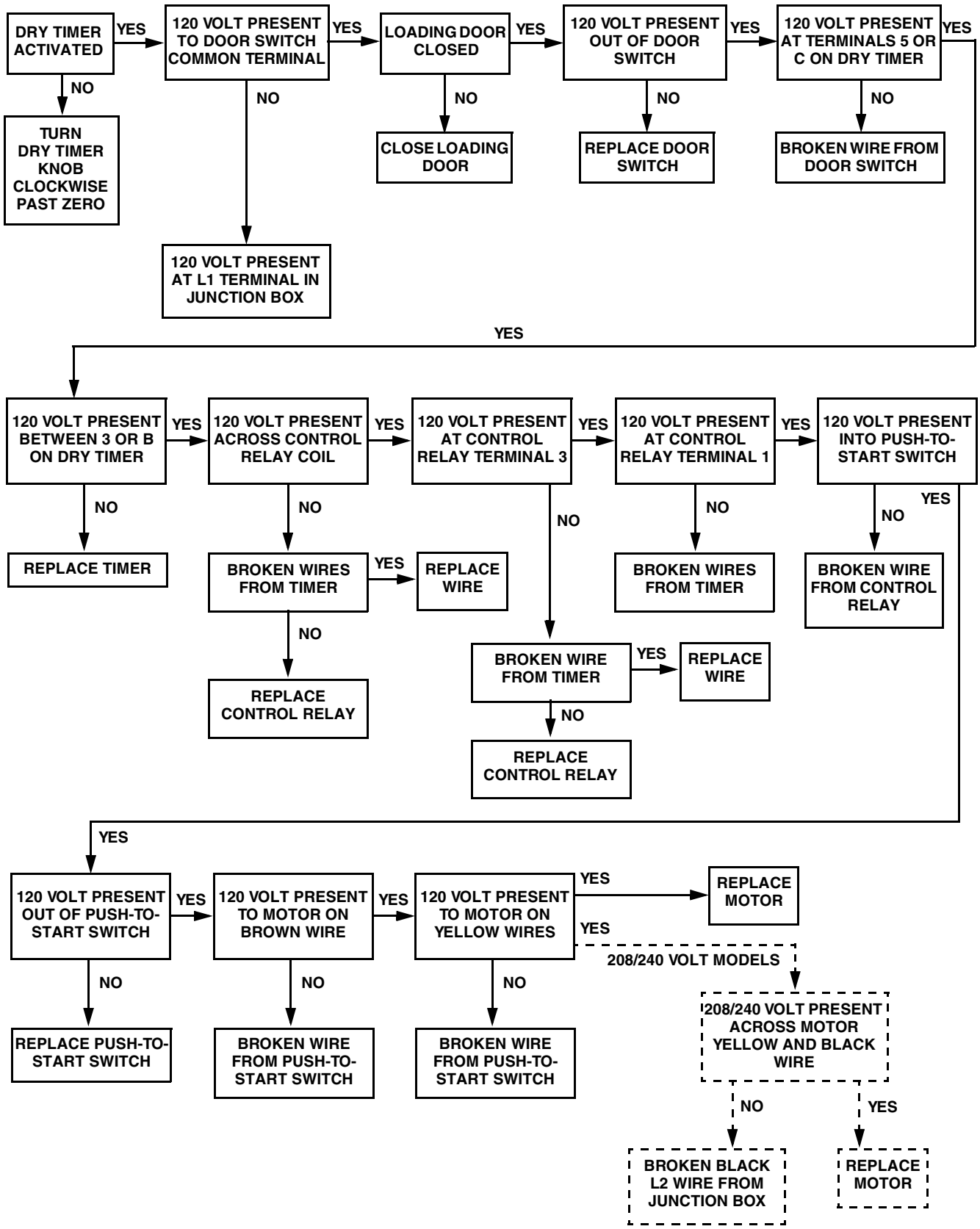
## 17. TUMBLER WILL NOT START (NONMETERED MODELS)





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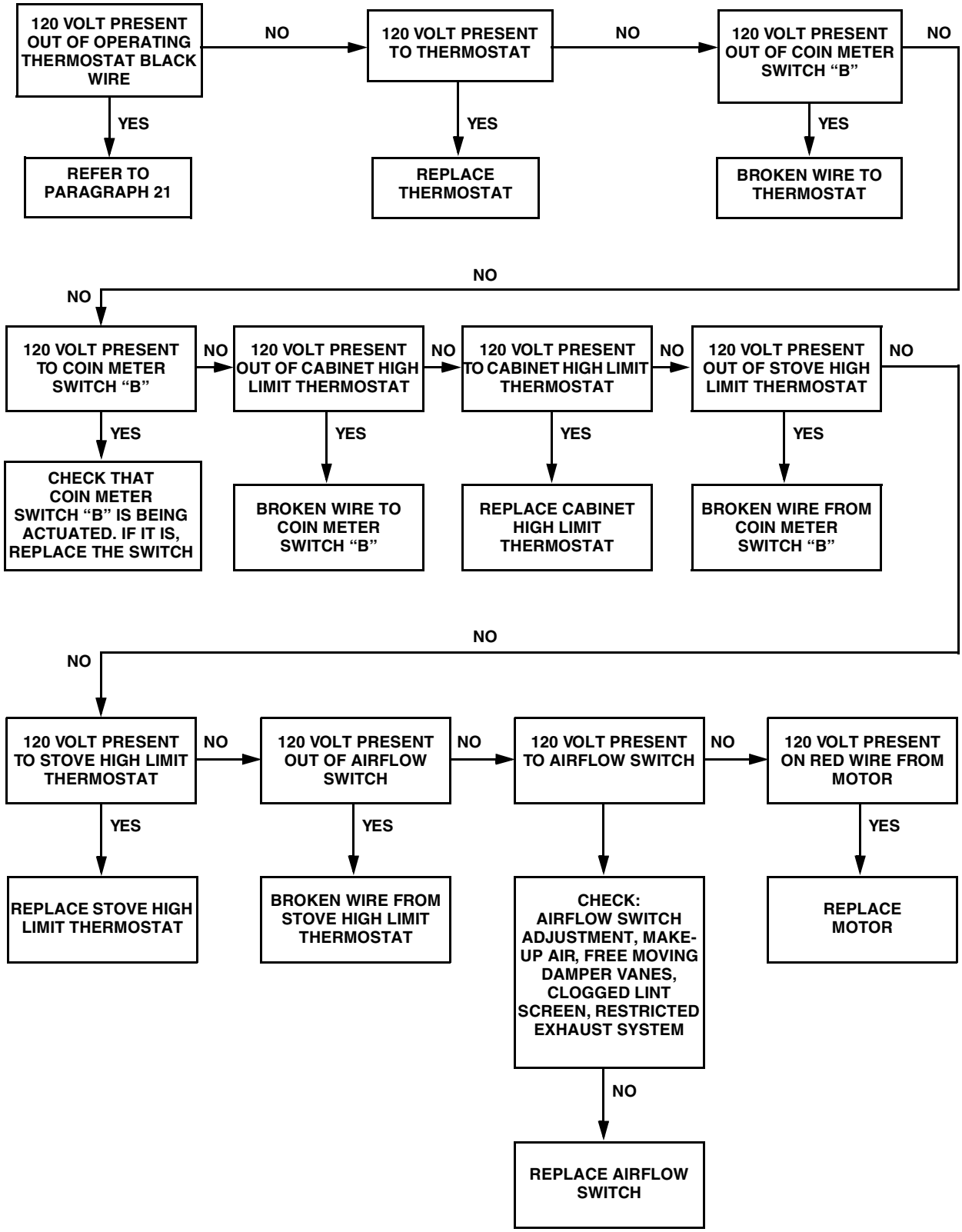
## 18. CYLINDER AND FAN TURN BUT NO HEAT (METERED MODELS)





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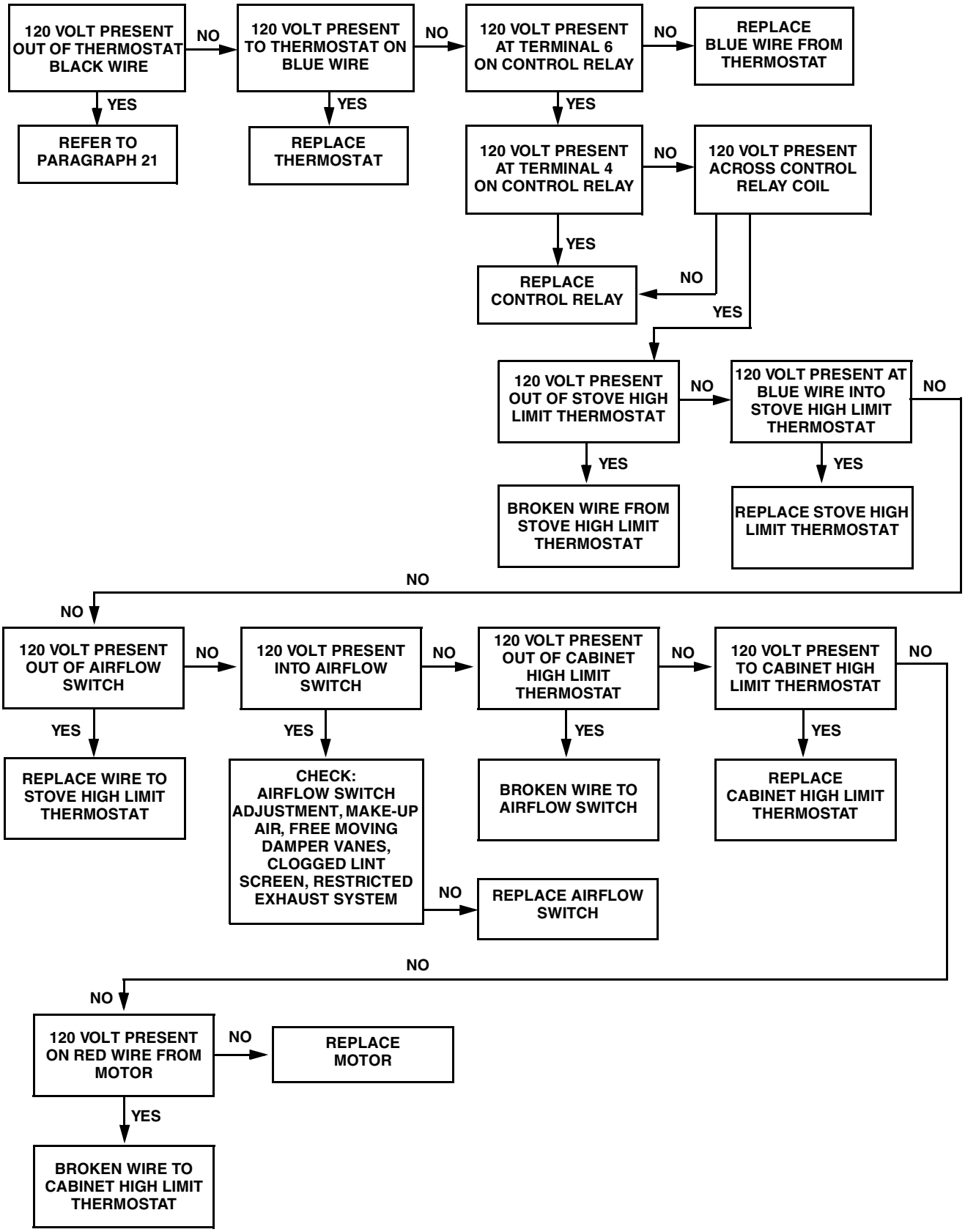
## 19. CYLINDER AND FAN TURN BUT NO HEAT (NON-METERED MODELS)





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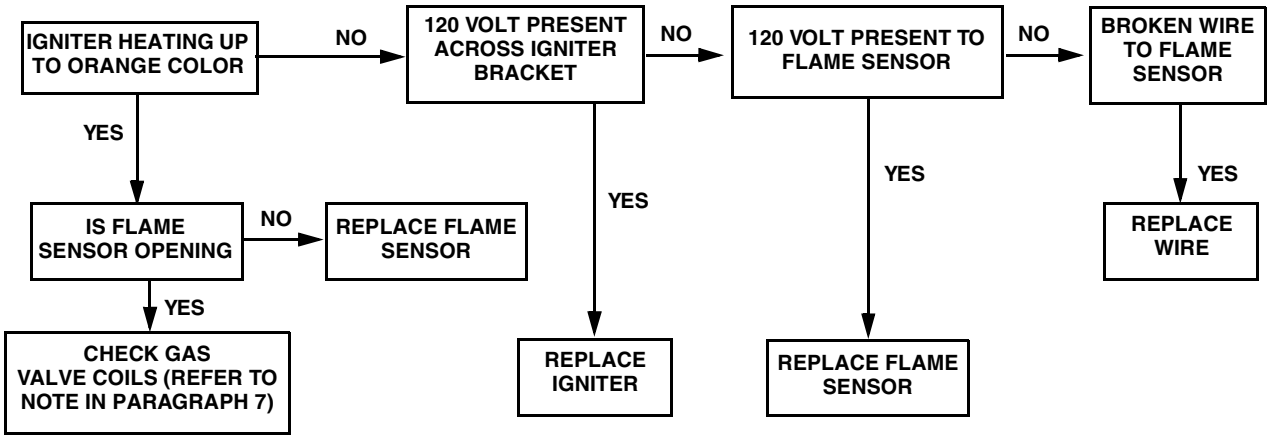
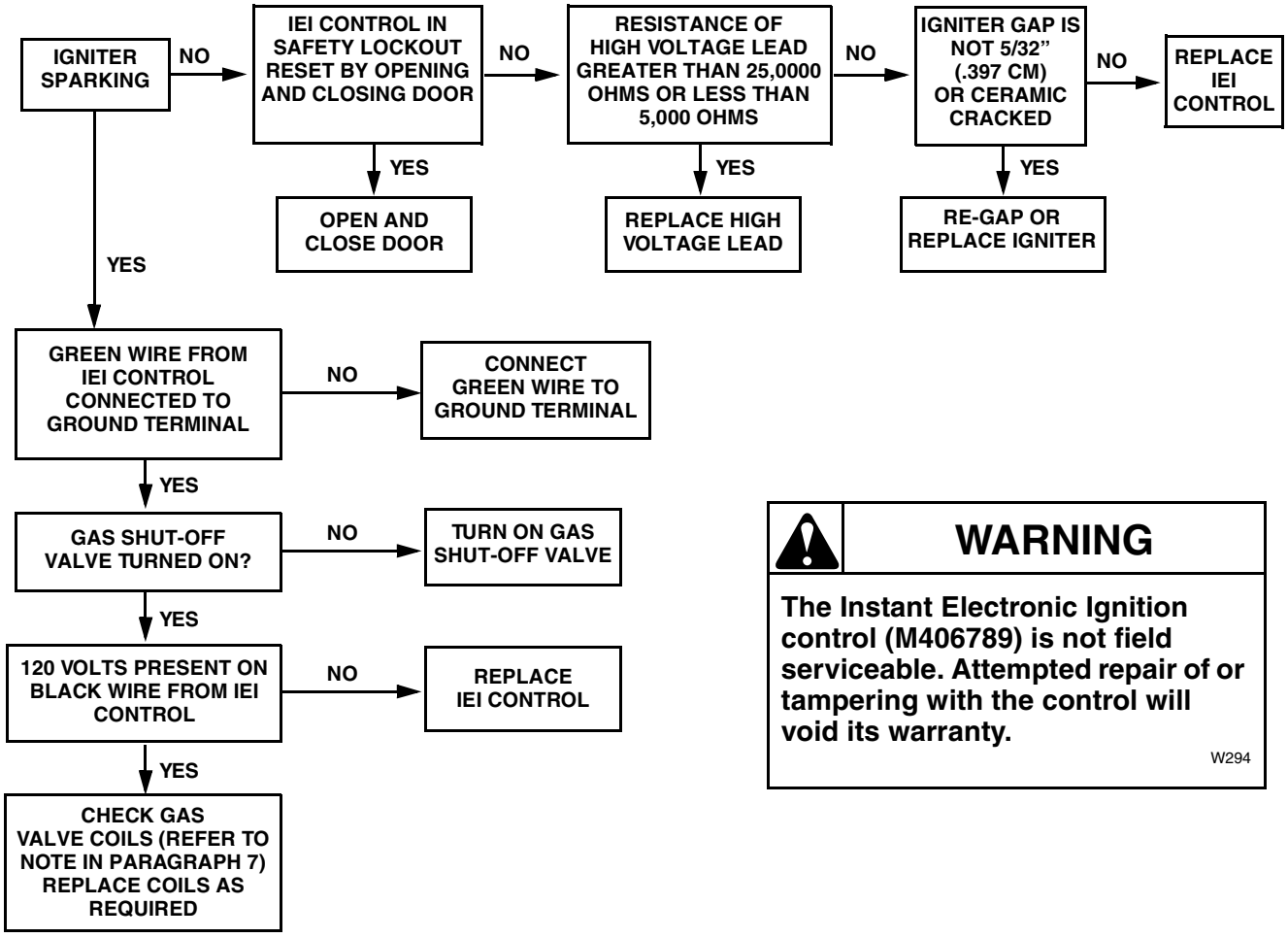
## 20. OPERATING THERMOSTAT CALLING FOR HEAT — NO MAIN BURNER — GLOWBAR IGNITION




## 21. OPERATING THERMOSTAT CALLING FOR HEAT — NO MAIN BURNER — INSTANT ELECTRONIC IGNITION




**WARNING**

**The Instant Electronic Ignition control (M406789) is not field serviceable. Attempted repair of or tampering with the control will void its warranty.**

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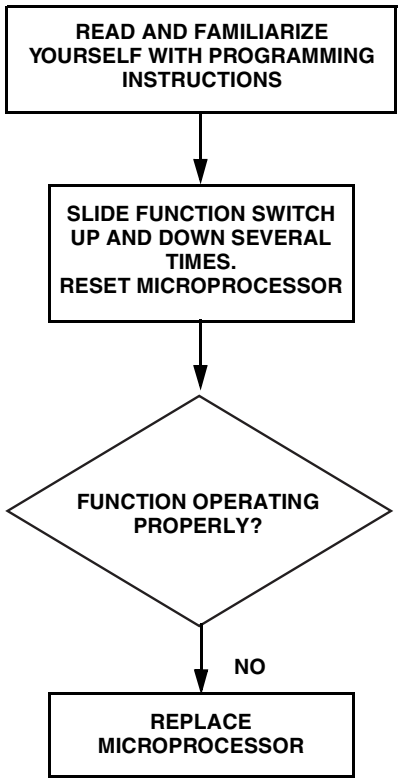
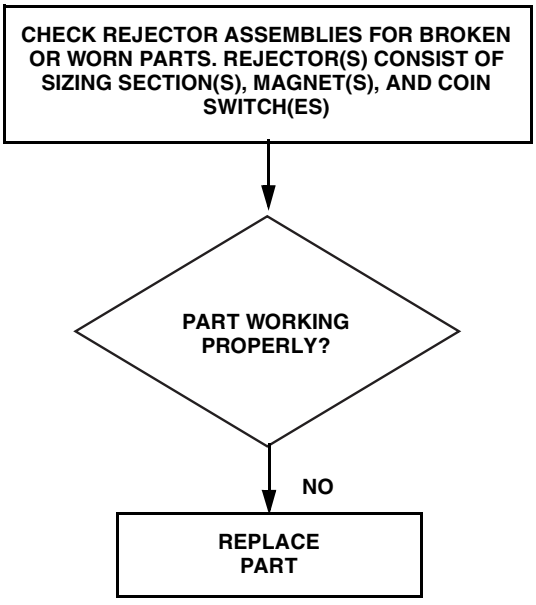
# First Generation Microprocessor Models (Serial Numbers XTKE11626RH through XTKE0568606TC)

## 22. MICROPROCESSOR DOES NOT PROGRAM PER INSTRUCTIONS


READ AND FAMILIARIZE YOURSELF WITH PROGRAMMING INSTRUCTIONS
SLIDE FUNCTION SWITCH UP AND DOWN SEVERAL TIMES. RESET MICROPROCESSOR
FUNCTION OPERATING PROPERLY?
NO
REPLACE MICROPROCESSOR

## 23. COIN DROP DOES NOT ACCEPT COINS


CHECK REJECTOR ASSEMBLIES FOR BROKEN OR WORN PARTS. REJECTOR(S) CONSIST OF SIZING SECTION(S), MAGNET(S), AND COIN SWITCH(ES)
PART WORKING PROPERLY?
NO
REPLACE PART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## 24. COIN DROP ACCEPTS COINS BUT DOES NOT IMPULSE THE MICROPROCESSOR ON RECEIPT OF PROGRAMMED COINS. *AVAILABLE* LED STAYS ON, UNIT WILL NOT START

**NOTE: Use Programming and Operating Instructions, Part No. M405499R1, to insure the unit is properly programmed.**

During operation, all eight program switches on the left hand switch bank must be in the down position. Right hand switch bank switch 3 may be up for 15 minute cool down; switch 4 may be up for beeper; switch 5 may be up to display alternating time and temperature; switch 8 may be up for 50 Hertz (overseas operation only). Switches 1, 2, 6 and 7 must be down.

### WARNING

**Some diagnostic tests require that the tumbler have electrical service. To reduce the risk of electric shock, disconnect the electrical service before beginning any service procedure.**

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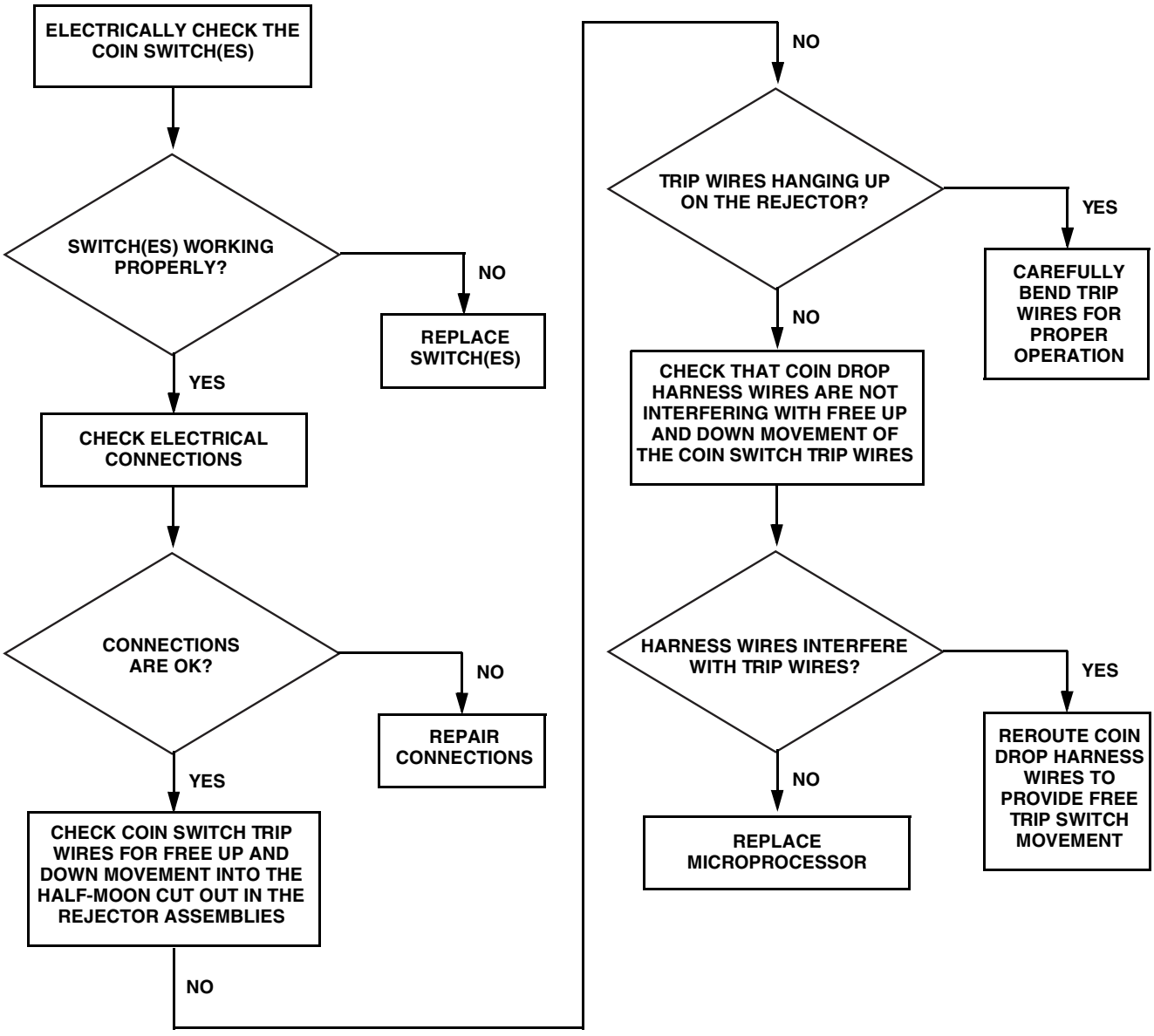
ELECTRICALLY CHECK THE COIN SWITCH(ES)
SWITCH(ES) WORKING PROPERLY?
NO
REPLACE SWITCH(ES)
YES
CHECK ELECTRICAL CONNECTIONS
CONNECTIONS ARE OK?
NO
REPAIR CONNECTIONS
YES
CHECK COIN SWITCH TRIP WIRES FOR FREE UP AND DOWN MOVEMENT INTO THE HALF-MOON CUT OUT IN THE REJECTOR ASSEMBLIES
NO
NO
TRIP WIRES HANGING UP ON THE REJECTOR?
YES
CAREFULLY BEND TRIP WIRES FOR PROPER OPERATION
NO
CHECK THAT COIN DROP HARNESS WIRES ARE NOT INTERFERING WITH FREE UP AND DOWN MOVEMENT OF THE COIN SWITCH TRIP WIRES
HARNESS WIRES INTERFERE WITH TRIP WIRES?
YES
REROUTE COIN DROP HARNESS WIRES TO PROVIDE FREE TRIP SWITCH MOVEMENT
NO
REPLACE MICROPROCESSOR


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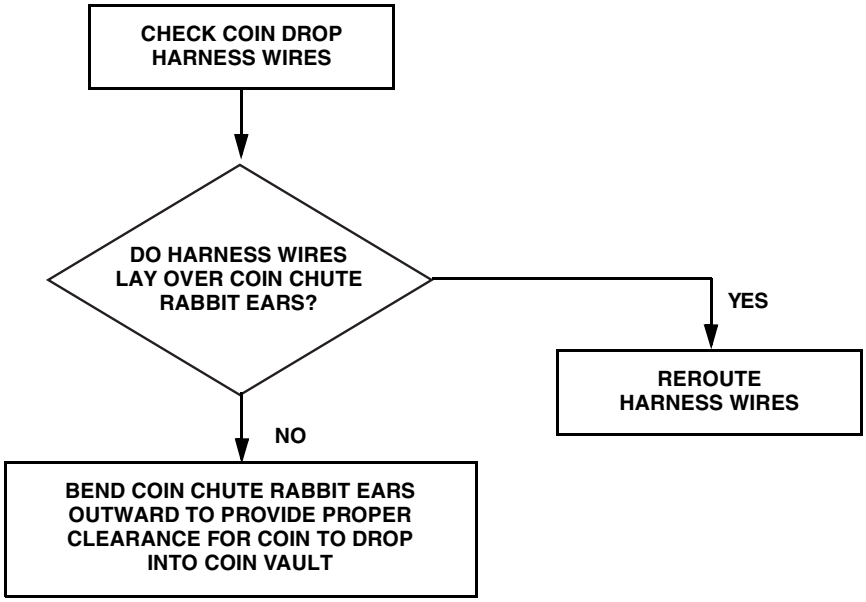
## 25. COIN DROP ACCEPTS COINS AND IMPULSES MICROPROCESSOR, BUT COIN DO NOT DROP INTO COIN VAULT. *AVAILABLE* LED OFF, *START* LED ON, TUMBLER STARTS


CHECK COIN DROP HARNESS WIRES
DO HARNESS WIRES LAY OVER COIN CHUTE RABBIT EARS?
YES
REROUTE HARNESS WIRES
NO
BEND COIN CHUTE RABBIT EARS OUTWARD TO PROVIDE PROPER CLEARANCE FOR COIN TO DROP INTO COIN VAULT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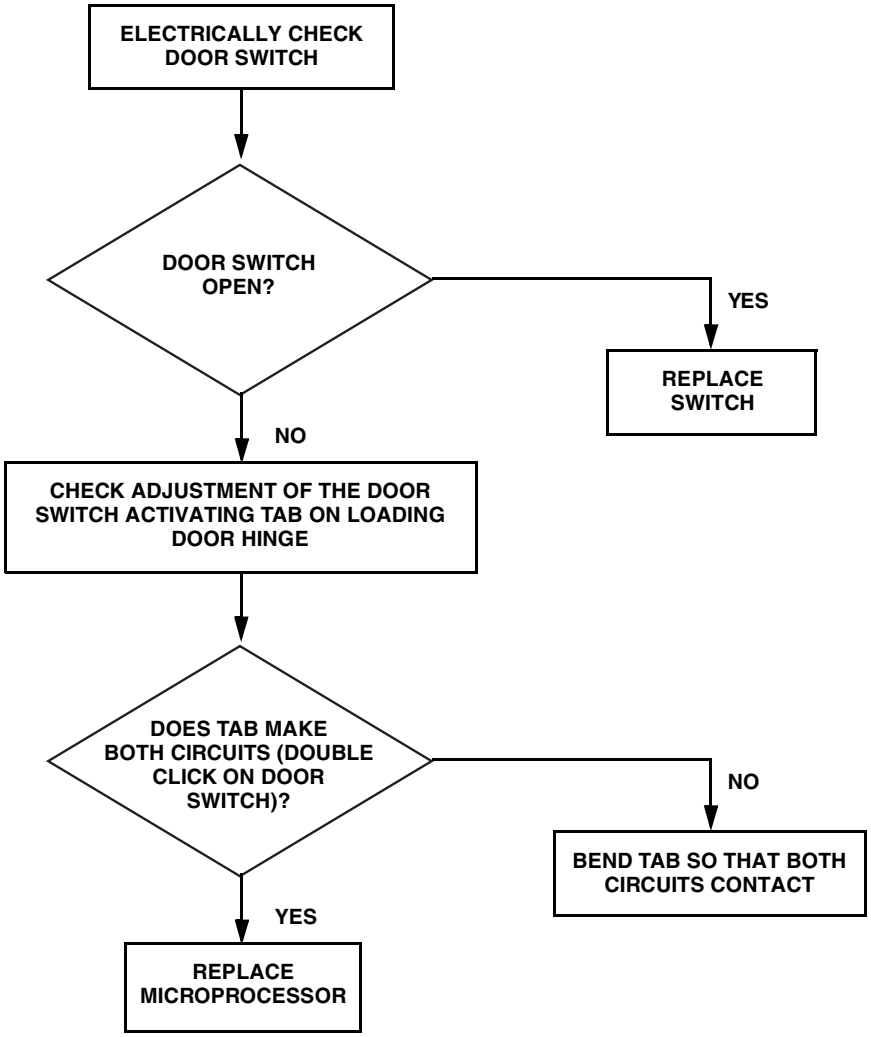
## 26. COINS ACCEPTED, BUT *DOOR OPEN* LIGHT REMAINS ON, UNIT WILL NOT START


ELECTRICALLY CHECK DOOR SWITCH
DOOR SWITCH OPEN?
YES
REPLACE SWITCH
NO
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
NO
BEND TAB SO THAT BOTH CIRCUITS CONTACT
YES
REPLACE MICROPROCESSOR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## WARNING

**Some diagnostic tests require that the tumbler have electrical service. To reduce the risk of electric shock, disconnect the electrical service before beginning any service procedure.**

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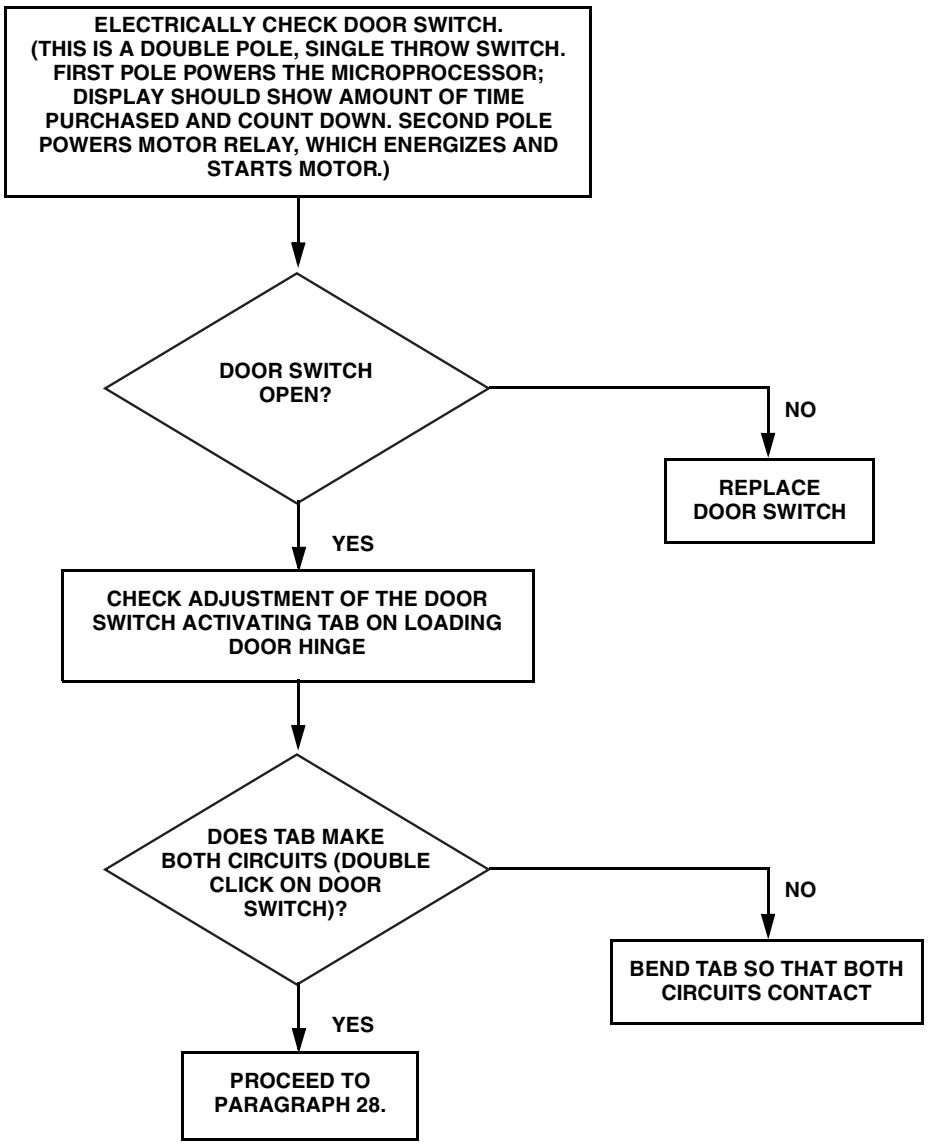
**27. COINS ACCEPTED; *START* LED ON; *PUSH-TO-START* BUTTON PUSHES AND RELEASES, BUT UNIT DOES NOT START**


ELECTRICALLY CHECK DOOR SWITCH. (THIS IS A DOUBLE POLE, SINGLE THROW SWITCH. FIRST POLE POWERS THE MICROPROCESSOR; DISPLAY SHOULD SHOW AMOUNT OF TIME PURCHASED AND COUNT DOWN. SECOND POLE POWERS MOTOR RELAY, WHICH ENERGIZES AND STARTS MOTOR.)
DOOR SWITCH OPEN?
NO
REPLACE DOOR SWITCH
YES
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
NO
BEND TAB SO THAT BOTH CIRCUITS CONTACT
YES
PROCEED TO PARAGRAPH 28.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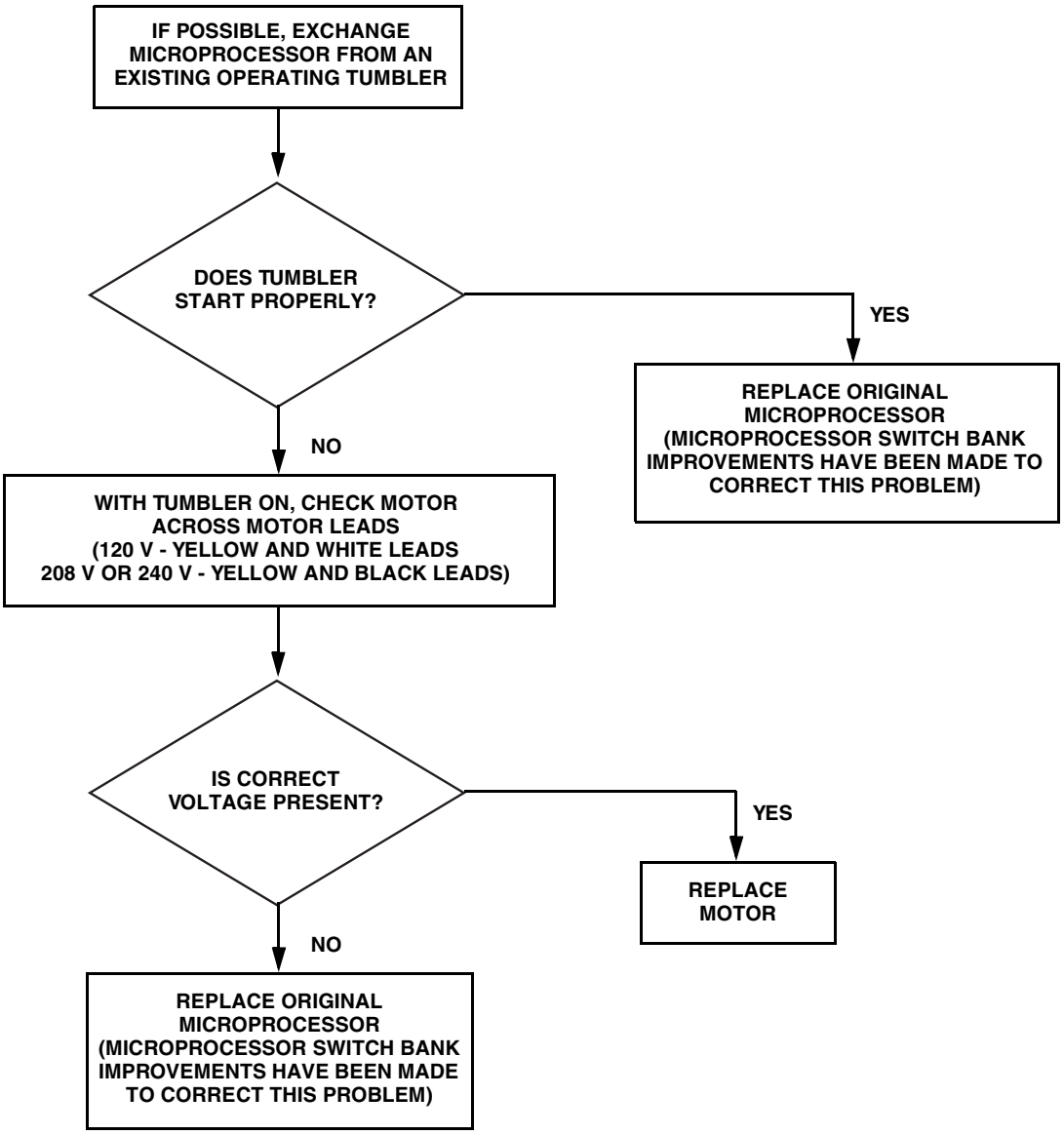
## 28. TUMBLER WILL NOT START ON *PUSH-TO-START* BUTTON, OR WILL START ONLY IF *PUSH-TO-START* BUTTON IS WIGGLED


IF POSSIBLE, EXCHANGE MICROPROCESSOR FROM AN EXISTING OPERATING TUMBLER
DOES TUMBLER START PROPERLY?
YES
REPLACE ORIGINAL MICROPROCESSOR (MICROPROCESSOR SWITCH BANK IMPROVEMENTS HAVE BEEN MADE TO CORRECT THIS PROBLEM)
NO
WITH TUMBLER ON, CHECK MOTOR ACROSS MOTOR LEADS (120 V - YELLOW AND WHITE LEADS 208 V OR 240 V - YELLOW AND BLACK LEADS)
IS CORRECT VOLTAGE PRESENT?
YES
REPLACE MOTOR
NO
REPLACE ORIGINAL MICROPROCESSOR (MICROPROCESSOR SWITCH BANK IMPROVEMENTS HAVE BEEN MADE TO CORRECT THIS PROBLEM)

## 29. UNABLE TO CHANGE TEMPERATURES THROUGH THE TEMPERATURE SELECTOR BUTTONS

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## WARNING

**Some diagnostic tests require that the tumbler have electrical service. To reduce the risk of electric shock, disconnect the electrical service before beginning any service procedure.**

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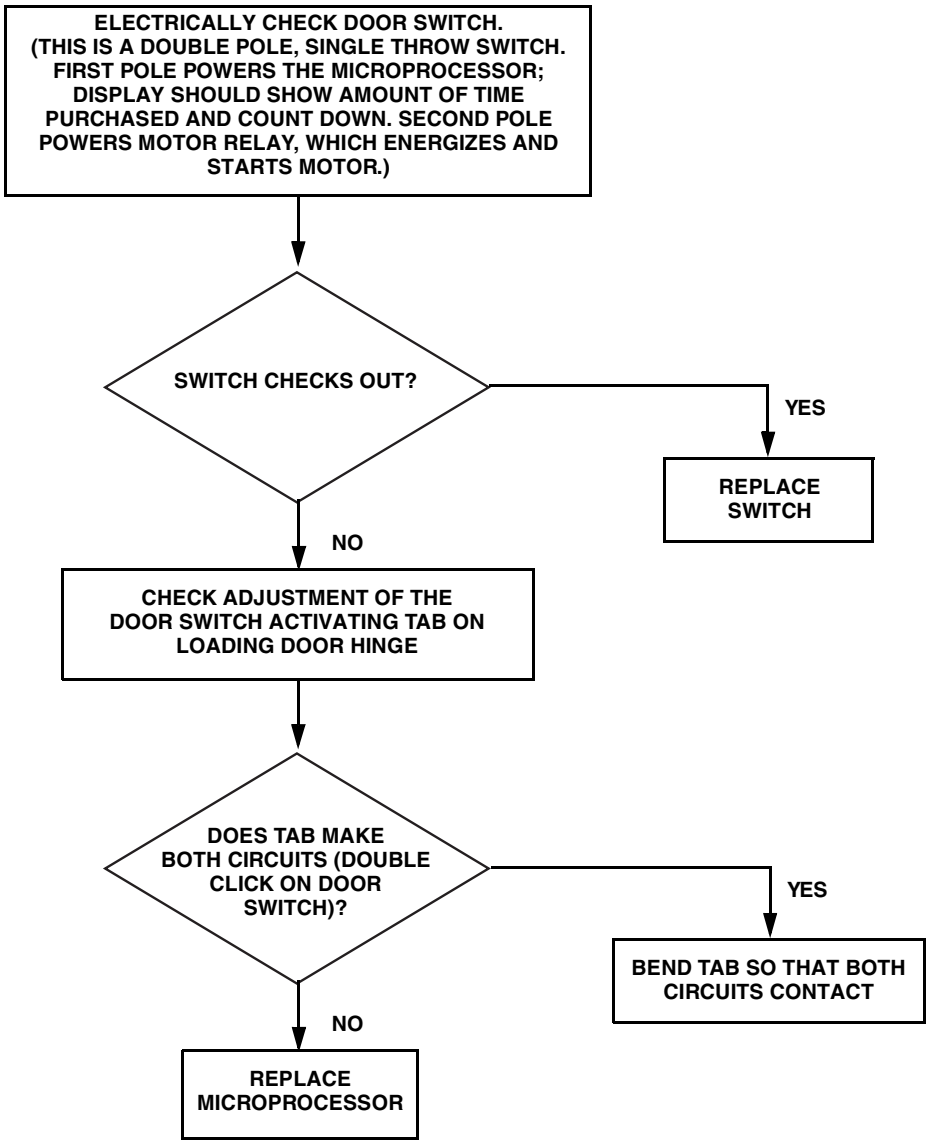
### 30. TUMBLER STARTS, BUT NO DISPLAY


ELECTRICALLY CHECK DOOR SWITCH. (THIS IS A DOUBLE POLE, SINGLE THROW SWITCH. FIRST POLE POWERS THE MICROPROCESSOR; DISPLAY SHOULD SHOW AMOUNT OF TIME PURCHASED AND COUNT DOWN. SECOND POLE POWERS MOTOR RELAY, WHICH ENERGIZES AND STARTS MOTOR.)
SWITCH CHECKS OUT?
YES
REPLACE SWITCH
NO
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
YES
BEND TAB SO THAT BOTH CIRCUITS CONTACT
NO
REPLACE MICROPROCESSOR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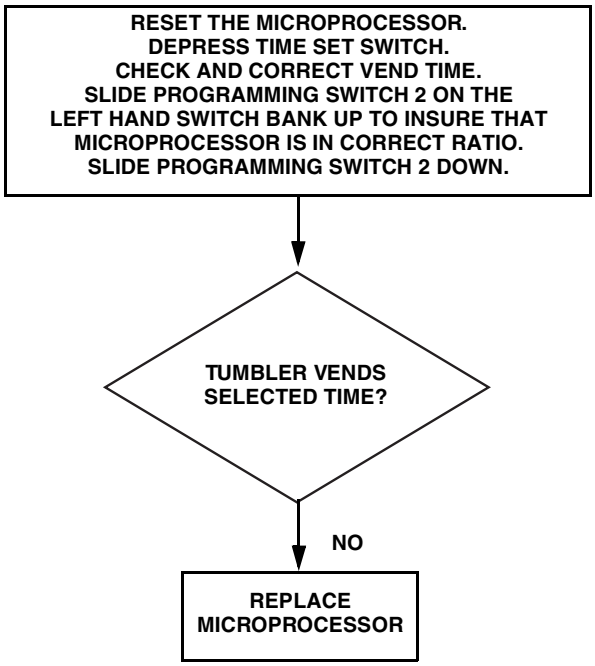
## 31. TUMBLER DOES NOT VEND SELECTED TIME





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## WARNING

**Some diagnostic tests require that the tumbler have electrical service. To reduce the risk of electric shock, disconnect the electrical service before beginning any service procedure.**

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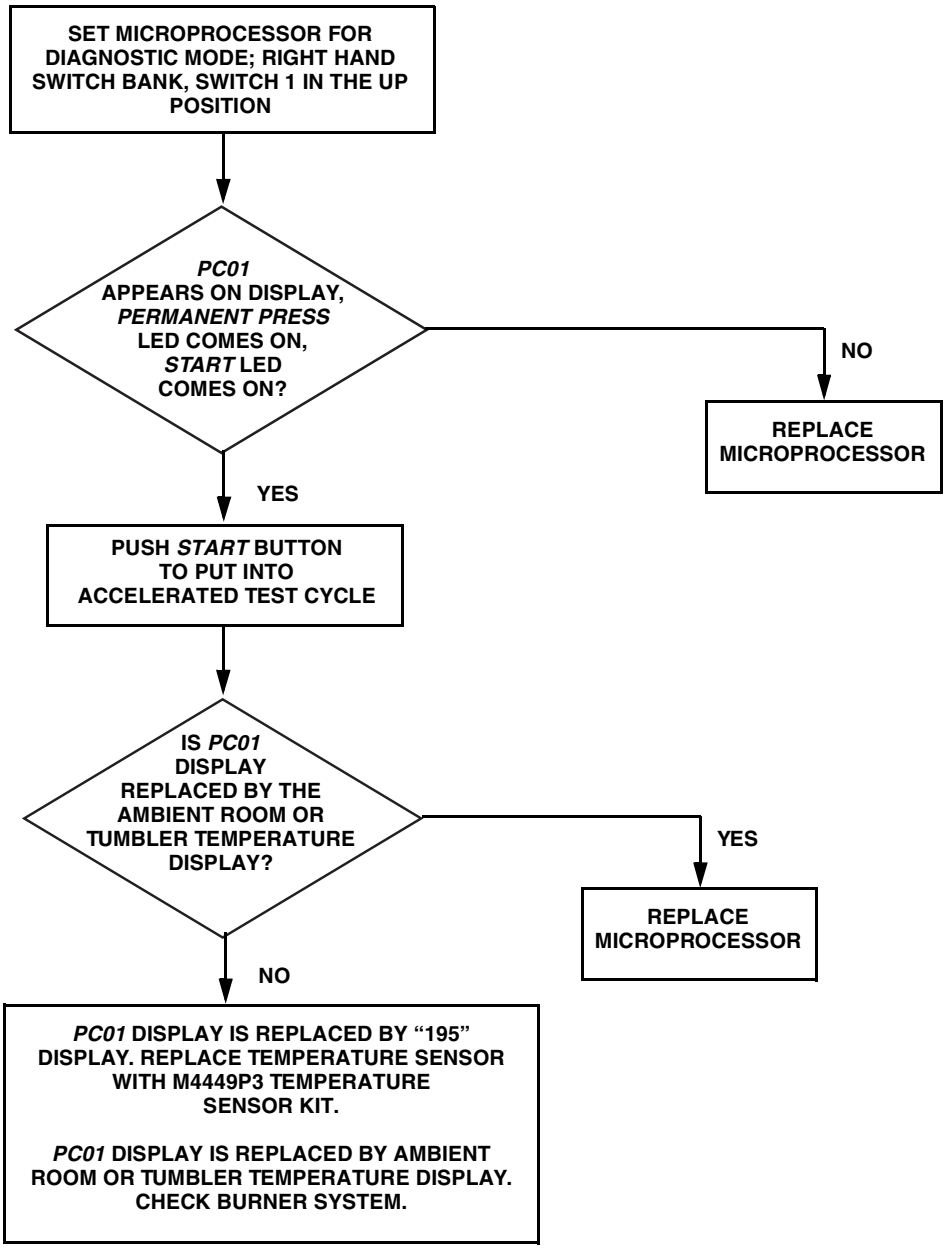
### 32. TUMBLER STARTS RUN CYCLE, BUT NO HEAT


SET MICROPROCESSOR FOR DIAGNOSTIC MODE; RIGHT HAND SWITCH BANK, SWITCH 1 IN THE UP POSITION
PC01 APPEARS ON DISPLAY, PERMANENT PRESS LED COMES ON, START LED COMES ON?
NO
REPLACE MICROPROCESSOR
YES
PUSH START BUTTON TO PUT INTO ACCELERATED TEST CYCLE
IS PC01 DISPLAY REPLACED BY THE AMBIENT ROOM OR TUMBLER TEMPERATURE DISPLAY?
YES
REPLACE MICROPROCESSOR
NO
PC01 DISPLAY IS REPLACED BY "195" DISPLAY. REPLACE TEMPERATURE SENSOR WITH M4449P3 TEMPERATURE SENSOR KIT.
PC01 DISPLAY IS REPLACED BY AMBIENT ROOM OR TUMBLER TEMPERATURE DISPLAY. CHECK BURNER SYSTEM.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## WARNING

**Some diagnostic tests require that the tumbler have electrical service. To reduce the risk of electric shock, disconnect the electrical service before beginning any service procedure.**

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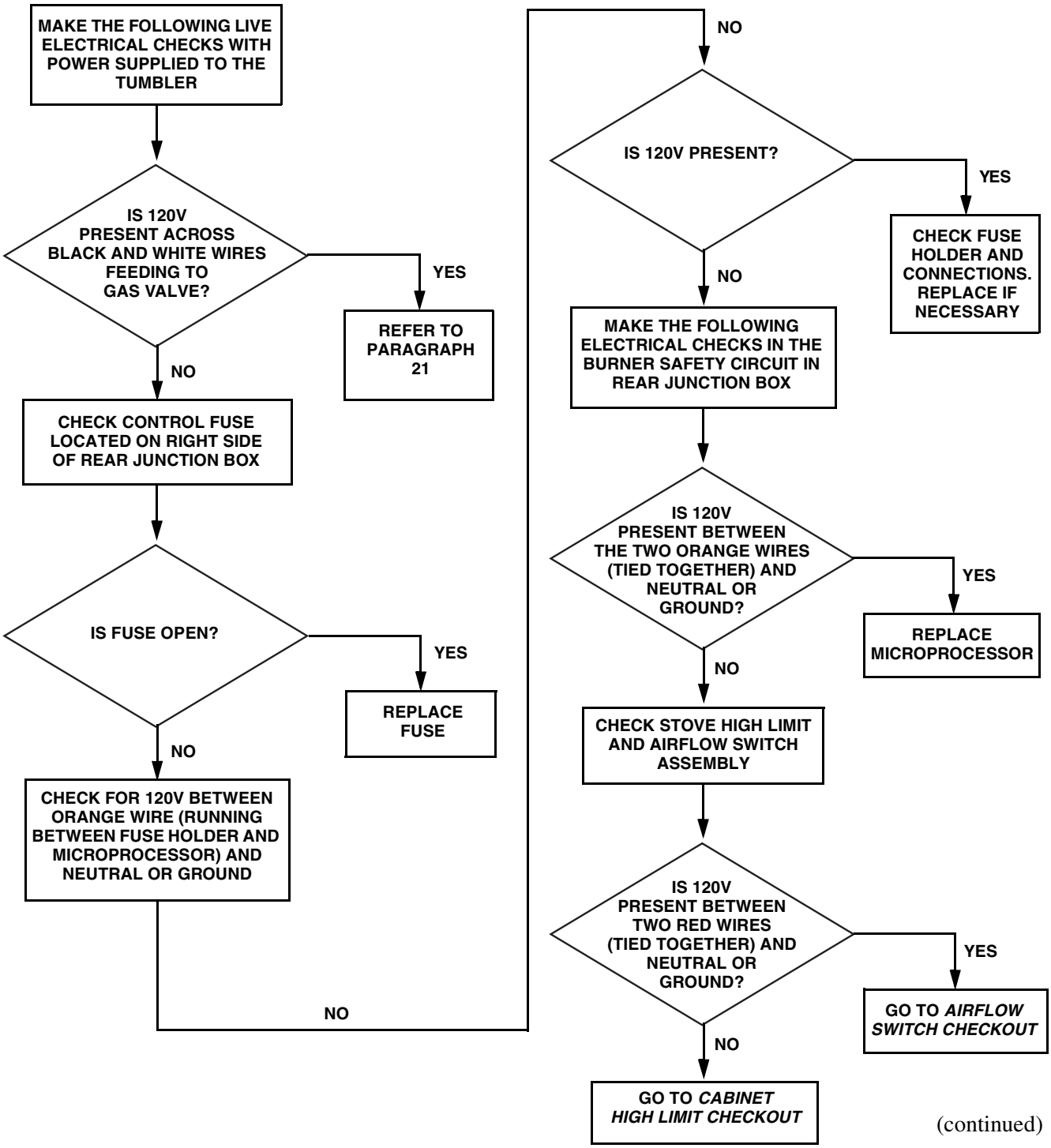
### 33. TEMPERATURE SENSOR CHECKS OUT, BUT NO IGNITION SYSTEM (GLOWBAR MODELS)


MAKE THE FOLLOWING LIVE ELECTRICAL CHECKS WITH POWER SUPPLIED TO THE TUMBLER
IS 120V PRESENT ACROSS BLACK AND WHITE WIRES FEEDING TO GAS VALVE?
YES
REFER TO PARAGRAPH 21
NO
CHECK CONTROL FUSE LOCATED ON RIGHT SIDE OF REAR JUNCTION BOX
IS FUSE OPEN?
YES
REPLACE FUSE
NO
CHECK FOR 120V BETWEEN ORANGE WIRE (RUNNING BETWEEN FUSE HOLDER AND MICROPROCESSOR) AND NEUTRAL OR GROUND
NO
IS 120V PRESENT?
YES
CHECK FUSE HOLDER AND CONNECTIONS. REPLACE IF NECESSARY
NO
MAKE THE FOLLOWING ELECTRICAL CHECKS IN THE BURNER SAFETY CIRCUIT IN REAR JUNCTION BOX
IS 120V PRESENT BETWEEN THE TWO ORANGE WIRES (TIED TOGETHER) AND NEUTRAL OR GROUND?
YES
REPLACE MICROPROCESSOR
NO
CHECK STOVE HIGH LIMIT AND AIRFLOW SWITCH ASSEMBLY
IS 120V PRESENT BETWEEN TWO RED WIRES (TIED TOGETHER) AND NEUTRAL OR GROUND?
YES
GO TO AIRFLOW SWITCH CHECKOUT
NO
GO TO CABINET HIGH LIMIT CHECKOUT

(continued)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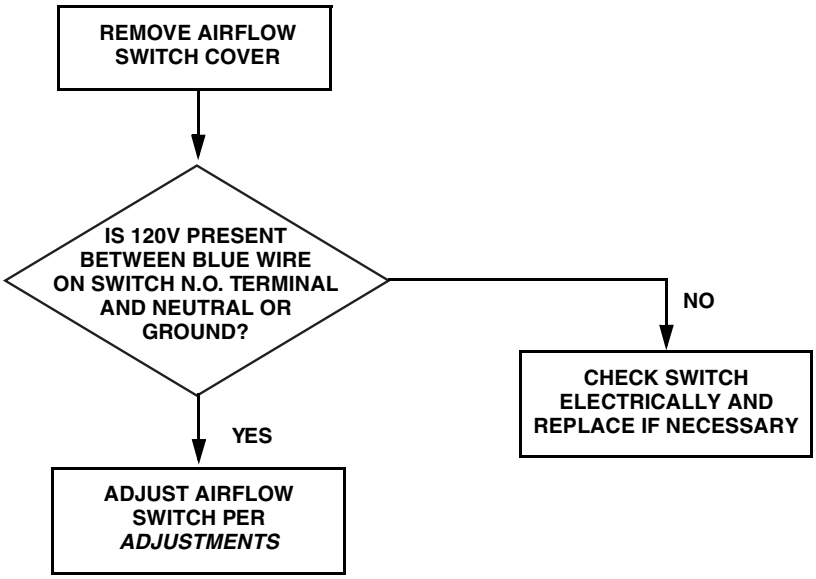
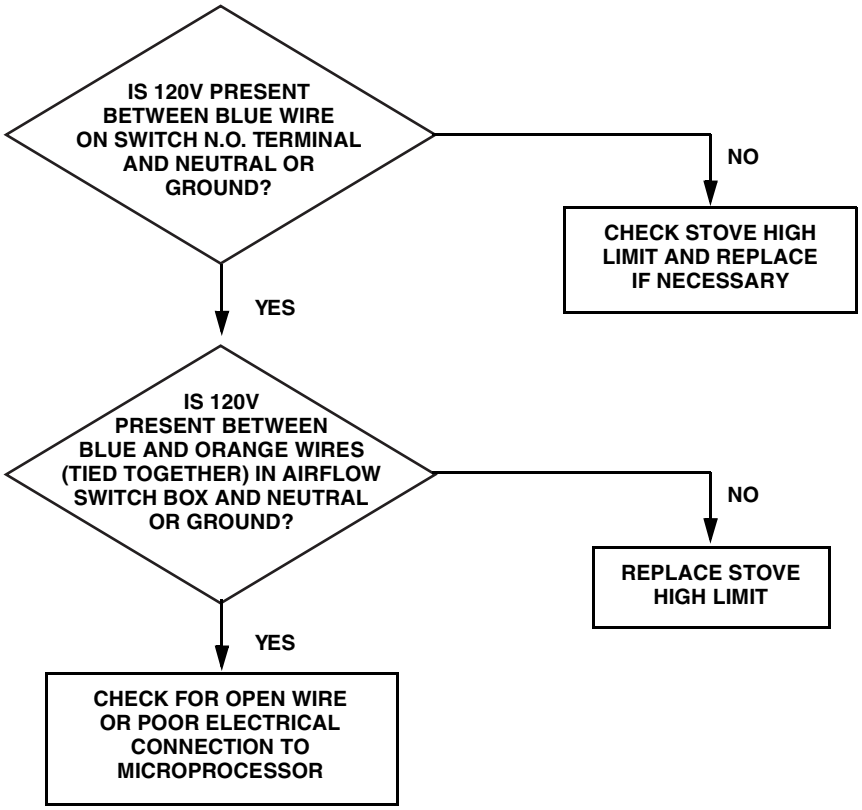
**Airflow Switch Checkout:**


REMOVE AIRFLOW SWITCH COVER
IS 120V PRESENT BETWEEN BLUE WIRE ON SWITCH N.O. TERMINAL AND NEUTRAL OR GROUND?
NO
CHECK SWITCH ELECTRICALLY AND REPLACE IF NECESSARY
YES
ADJUST AIRFLOW SWITCH PER *ADJUSTMENTS*

**Cabinet High Limit Checkout:**


IS 120V PRESENT BETWEEN BLUE WIRE ON SWITCH N.O. TERMINAL AND NEUTRAL OR GROUND?
NO
CHECK STOVE HIGH LIMIT AND REPLACE IF NECESSARY
YES
IS 120V PRESENT BETWEEN BLUE AND ORANGE WIRES (TIED TOGETHER) IN AIRFLOW SWITCH BOX AND NEUTRAL OR GROUND?
NO
REPLACE STOVE HIGH LIMIT
YES
CHECK FOR OPEN WIRE OR POOR ELECTRICAL CONNECTION TO MICROPROCESSOR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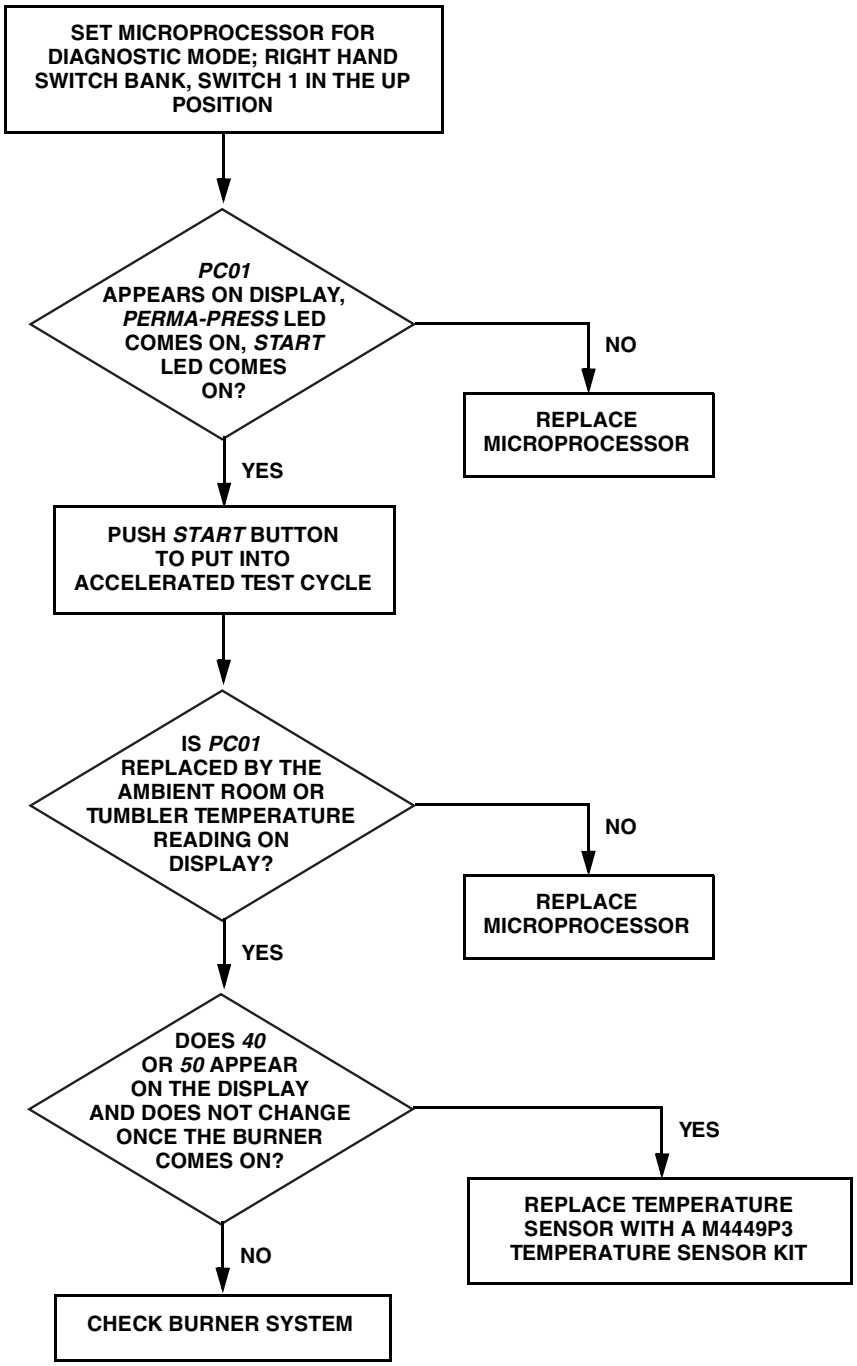
## 34. TUMBLER OVERDRYING LOADS


SET MICROPROCESSOR FOR DIAGNOSTIC MODE; RIGHT HAND SWITCH BANK, SWITCH 1 IN THE UP POSITION
PC01 APPEARS ON DISPLAY, PERMA-PRESS LED COMES ON, START LED COMES ON?
NO
REPLACE MICROPROCESSOR
YES
PUSH START BUTTON TO PUT INTO ACCELERATED TEST CYCLE
IS PC01 REPLACED BY THE AMBIENT ROOM OR TUMBLER TEMPERATURE READING ON DISPLAY?
NO
REPLACE MICROPROCESSOR
YES
DOES 40 OR 50 APPEAR ON THE DISPLAY AND DOES NOT CHANGE ONCE THE BURNER COMES ON?
YES
REPLACE TEMPERATURE SENSOR WITH A M4449P3 TEMPERATURE SENSOR KIT
NO
CHECK BURNER SYSTEM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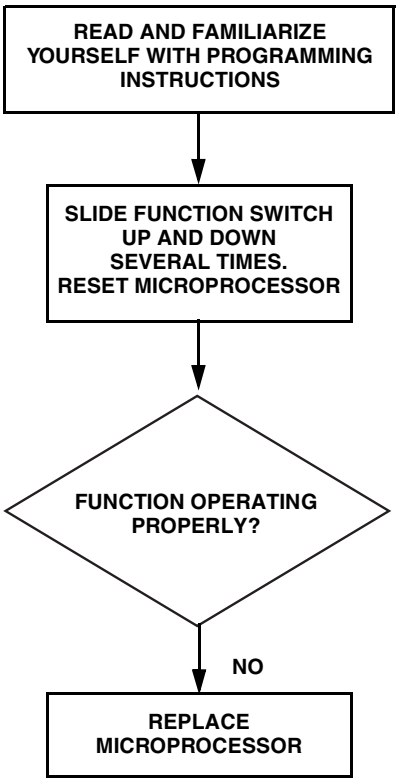
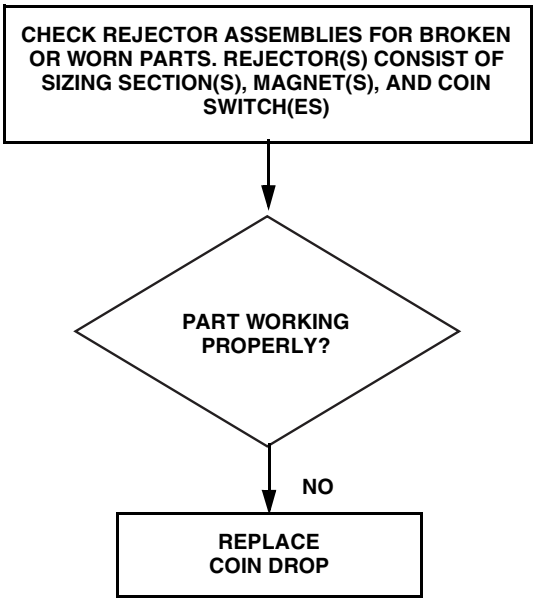
# Second Generation Microprocessor Models Starting with Serial Number XTEK056860TC

## 35. MICROPROCESSOR DOES NOT PROGRAM PER INSTRUCTIONS


READ AND FAMILIARIZE YOURSELF WITH PROGRAMMING INSTRUCTIONS
SLIDE FUNCTION SWITCH UP AND DOWN SEVERAL TIMES. RESET MICROPROCESSOR
FUNCTION OPERATING PROPERLY?
NO
REPLACE MICROPROCESSOR

## 36. COIN DROP DOES NOT ACCEPT COINS


CHECK REJECTOR ASSEMBLIES FOR BROKEN OR WORN PARTS. REJECTOR(S) CONSIST OF SIZING SECTION(S), MAGNET(S), AND COIN SWITCH(ES)
PART WORKING PROPERLY?
NO
REPLACE COIN DROP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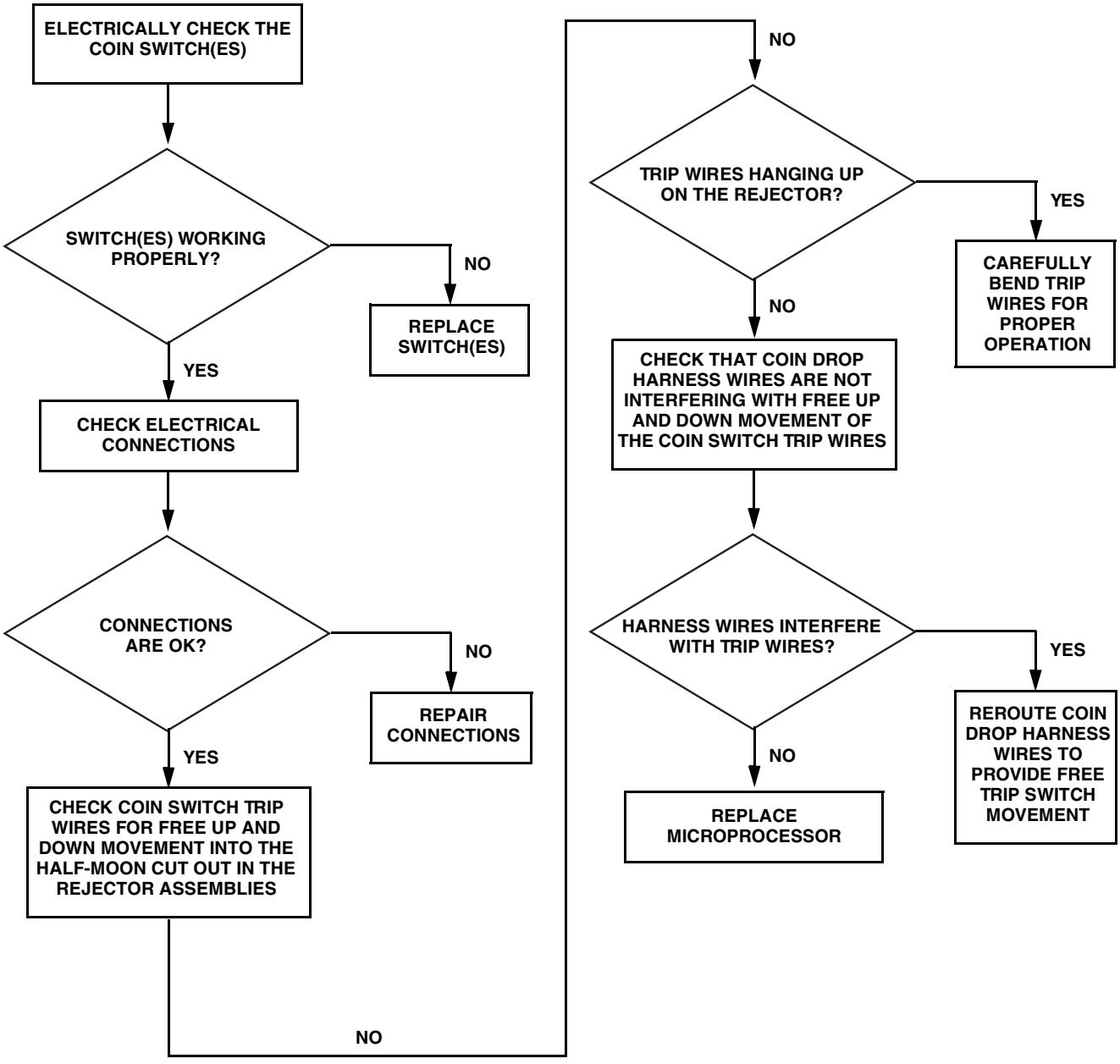
## 37. COIN DROP ACCEPTS COINS BUT DOES NOT IMPULSE THE MICROPROCESSOR ON RECEIPT OF PROGRAMMED COINS. *AVAILABLE* LED STAYS ON, UNIT WILL NOT START

**NOTE: Use Programming and Operating Instructions, Part No. M406243, to insure the unit is properly programmed.**

During operation, all eight program switches on the left hand switch bank must be in the down position. Right hand switch bank switch 3 may be up for 15 minute cool down; switch 4 may be up for beeper; switch 5 may be up to display alternating time and temperature; switch 8 may be up for 50 Hertz. Switches 1, 2, 6 and 7 must be down.


ELECTRICALLY CHECK THE COIN SWITCH(ES)
SWITCH(ES) WORKING PROPERLY?
NO
REPLACE SWITCH(ES)
YES
CHECK ELECTRICAL CONNECTIONS
CONNECTIONS ARE OK?
NO
REPAIR CONNECTIONS
YES
CHECK COIN SWITCH TRIP WIRES FOR FREE UP AND DOWN MOVEMENT INTO THE HALF-MOON CUT OUT IN THE REJECTOR ASSEMBLIES
NO
TRIP WIRES HANGING UP ON THE REJECTOR?
YES
CAREFULLY BEND TRIP WIRES FOR PROPER OPERATION
NO
CHECK THAT COIN DROP HARNESS WIRES ARE NOT INTERFERING WITH FREE UP AND DOWN MOVEMENT OF THE COIN SWITCH TRIP WIRES
HARNESS WIRES INTERFERE WITH TRIP WIRES?
YES
REROUTE COIN DROP HARNESS WIRES TO PROVIDE FREE TRIP SWITCH MOVEMENT
NO
REPLACE MICROPROCESSOR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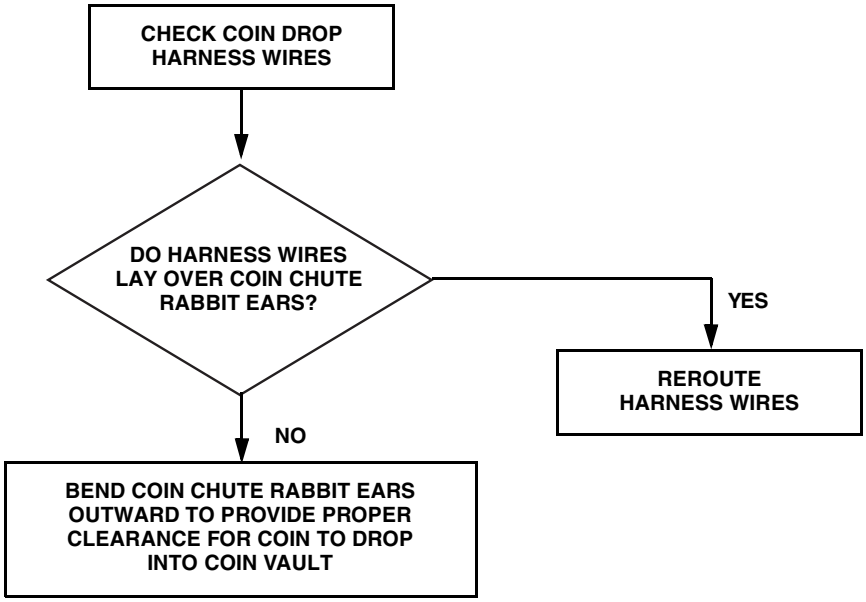
## 38. COIN DROP ACCEPTS COINS AND IMPULSES MICROPROCESSOR, BUT COIN DO NOT DROP INTO COIN VAULT. *AVAILABLE* LED OFF, *START* LED ON, TUMBLER STARTS


CHECK COIN DROP HARNESS WIRES
DO HARNESS WIRES LAY OVER COIN CHUTE RABBIT EARS?
YES
REROUTE HARNESS WIRES
NO
BEND COIN CHUTE RABBIT EARS OUTWARD TO PROVIDE PROPER CLEARANCE FOR COIN TO DROP INTO COIN VAULT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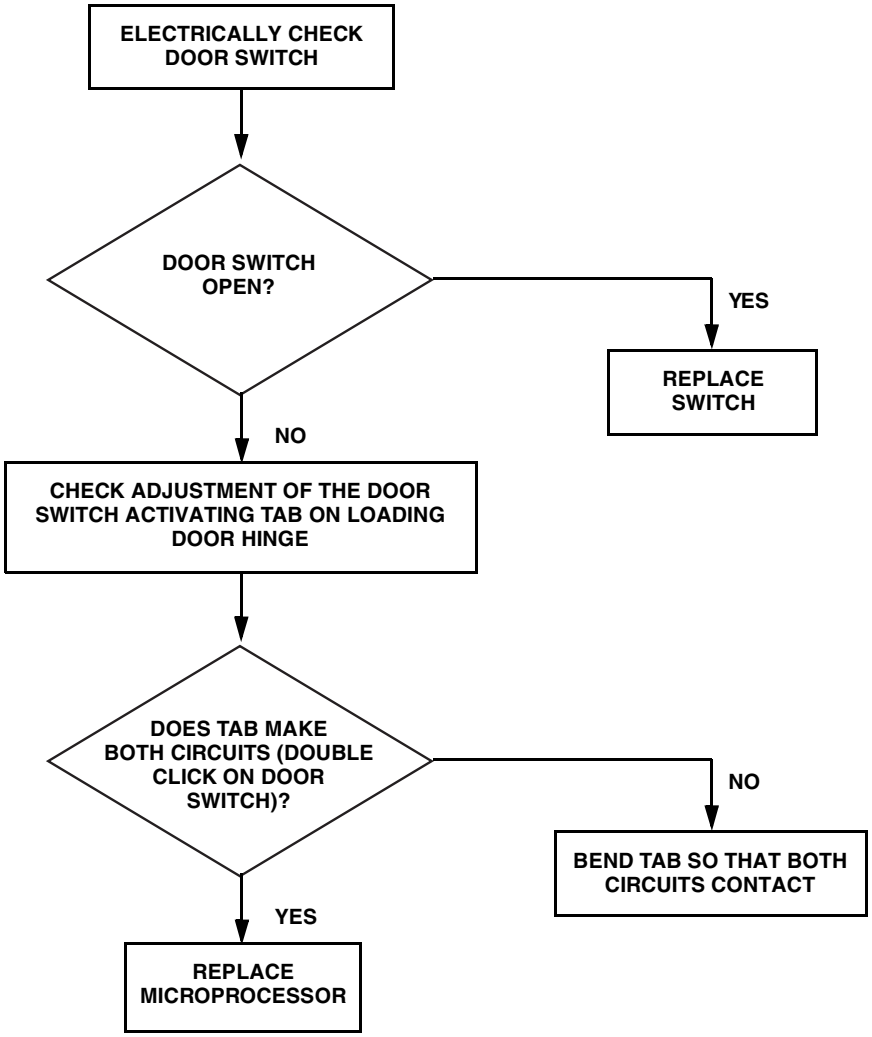
## 39. COINS ACCEPTED, BUT *DOOR OPEN* LIGHT REMAINS ON, UNIT WILL NOT START


ELECTRICALLY CHECK DOOR SWITCH
DOOR SWITCH OPEN?
YES
REPLACE SWITCH
NO
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
NO
BEND TAB SO THAT BOTH CIRCUITS CONTACT
YES
REPLACE MICROPROCESSOR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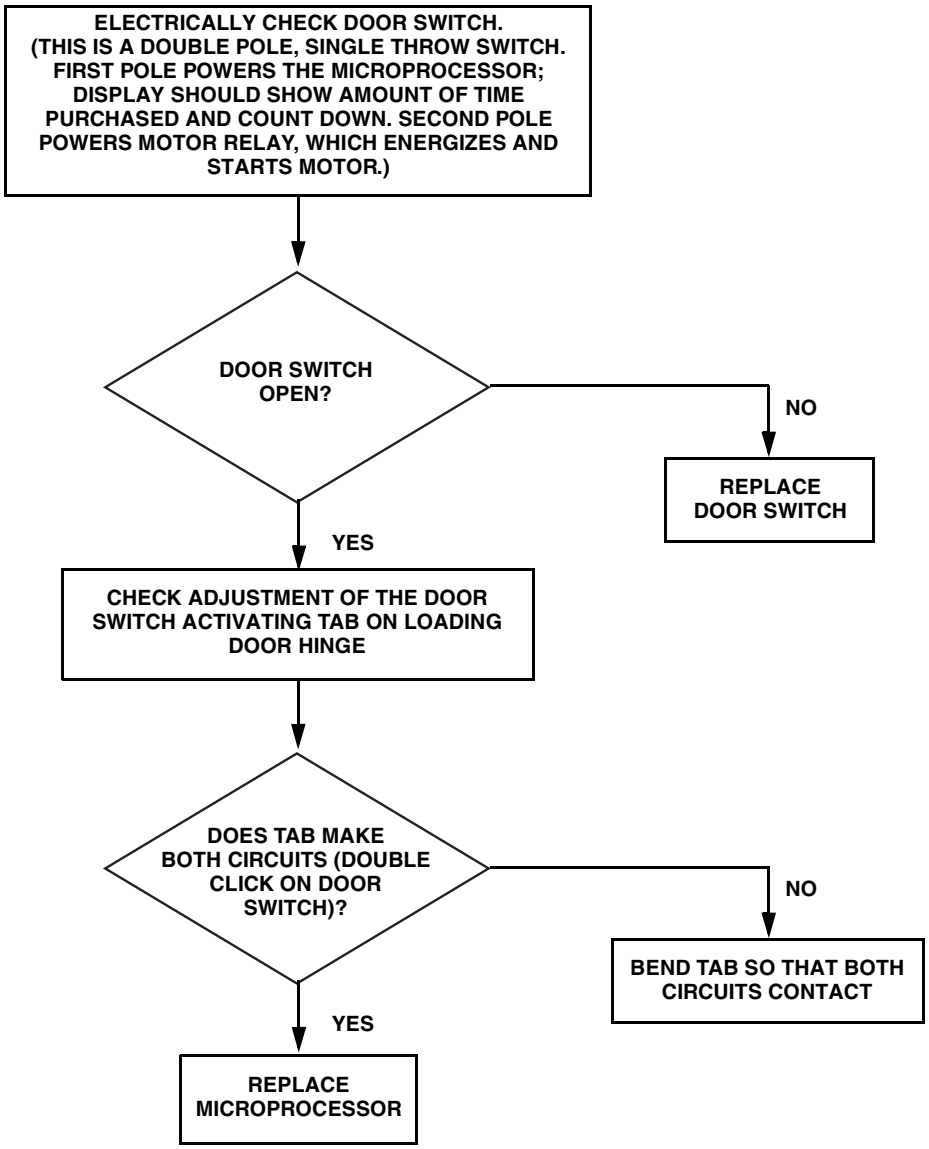
## 40. COINS ACCEPTED; *START* LED ON; *PUSH-TO-START* BUTTON PUSHES AND RELEASES, BUT UNIT DOES NOT START


ELECTRICALLY CHECK DOOR SWITCH. (THIS IS A DOUBLE POLE, SINGLE THROW SWITCH. FIRST POLE POWERS THE MICROPROCESSOR; DISPLAY SHOULD SHOW AMOUNT OF TIME PURCHASED AND COUNT DOWN. SECOND POLE POWERS MOTOR RELAY, WHICH ENERGIZES AND STARTS MOTOR.)
DOOR SWITCH OPEN?
NO
REPLACE DOOR SWITCH
YES
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
NO
BEND TAB SO THAT BOTH CIRCUITS CONTACT
YES
REPLACE MICROPROCESSOR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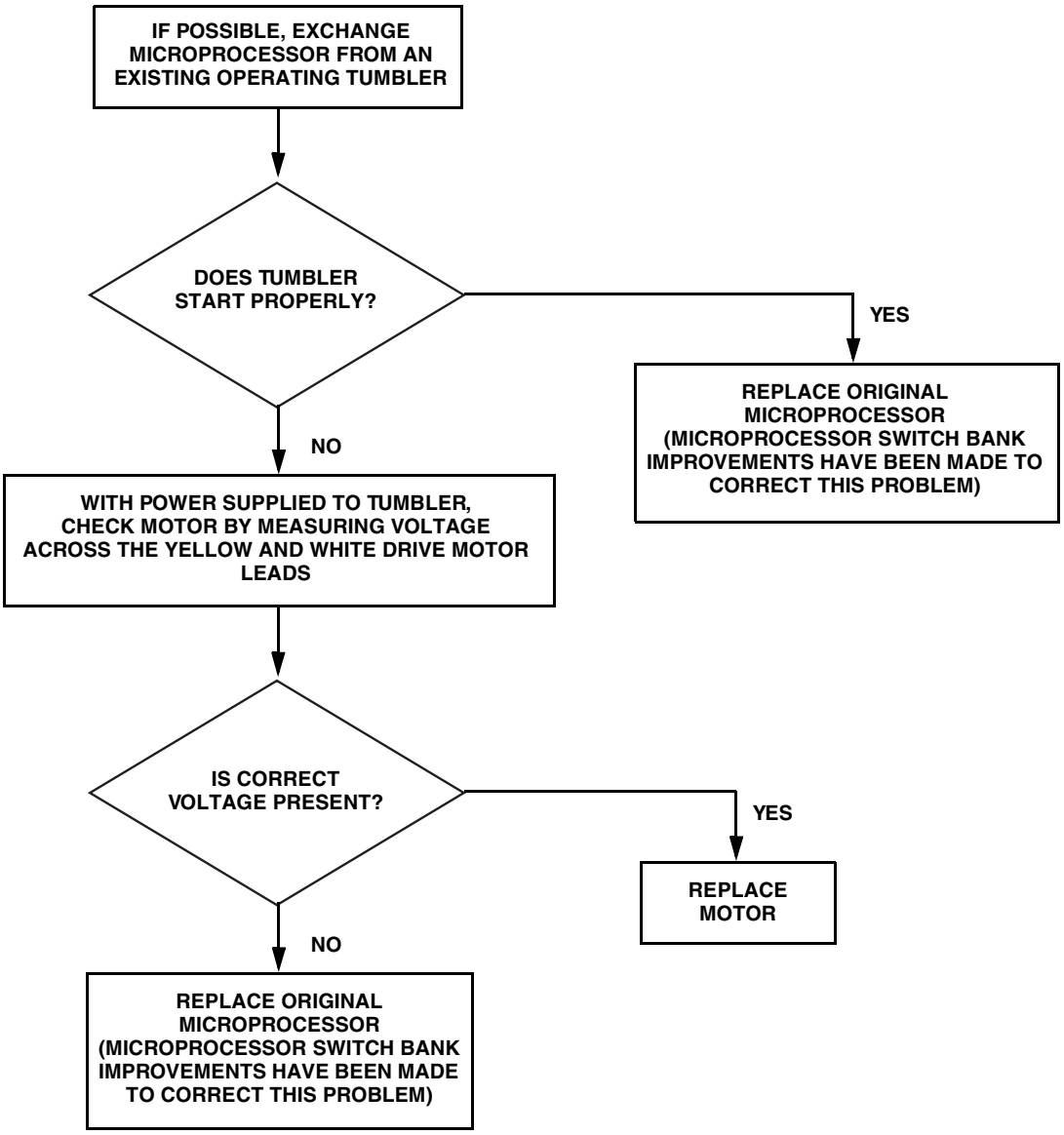
## 41. TUMBLER WILL NOT START ON *PUSH-TO-START* BUTTON, OR WILL START ONLY IF *PUSH-TO-START* BUTTON IS WIGGLED


IF POSSIBLE, EXCHANGE MICROPROCESSOR FROM AN EXISTING OPERATING TUMBLER
DOES TUMBLER START PROPERLY?
YES
REPLACE ORIGINAL MICROPROCESSOR (MICROPROCESSOR SWITCH BANK IMPROVEMENTS HAVE BEEN MADE TO CORRECT THIS PROBLEM)
NO
WITH POWER SUPPLIED TO TUMBLER, CHECK MOTOR BY MEASURING VOLTAGE ACROSS THE YELLOW AND WHITE DRIVE MOTOR LEADS
IS CORRECT VOLTAGE PRESENT?
YES
REPLACE MOTOR
NO
REPLACE ORIGINAL MICROPROCESSOR (MICROPROCESSOR SWITCH BANK IMPROVEMENTS HAVE BEEN MADE TO CORRECT THIS PROBLEM)

## 42. UNABLE TO CHANGE TEMPERATURES THROUGH THE TEMPERATURE SELECTOR BUTTONS

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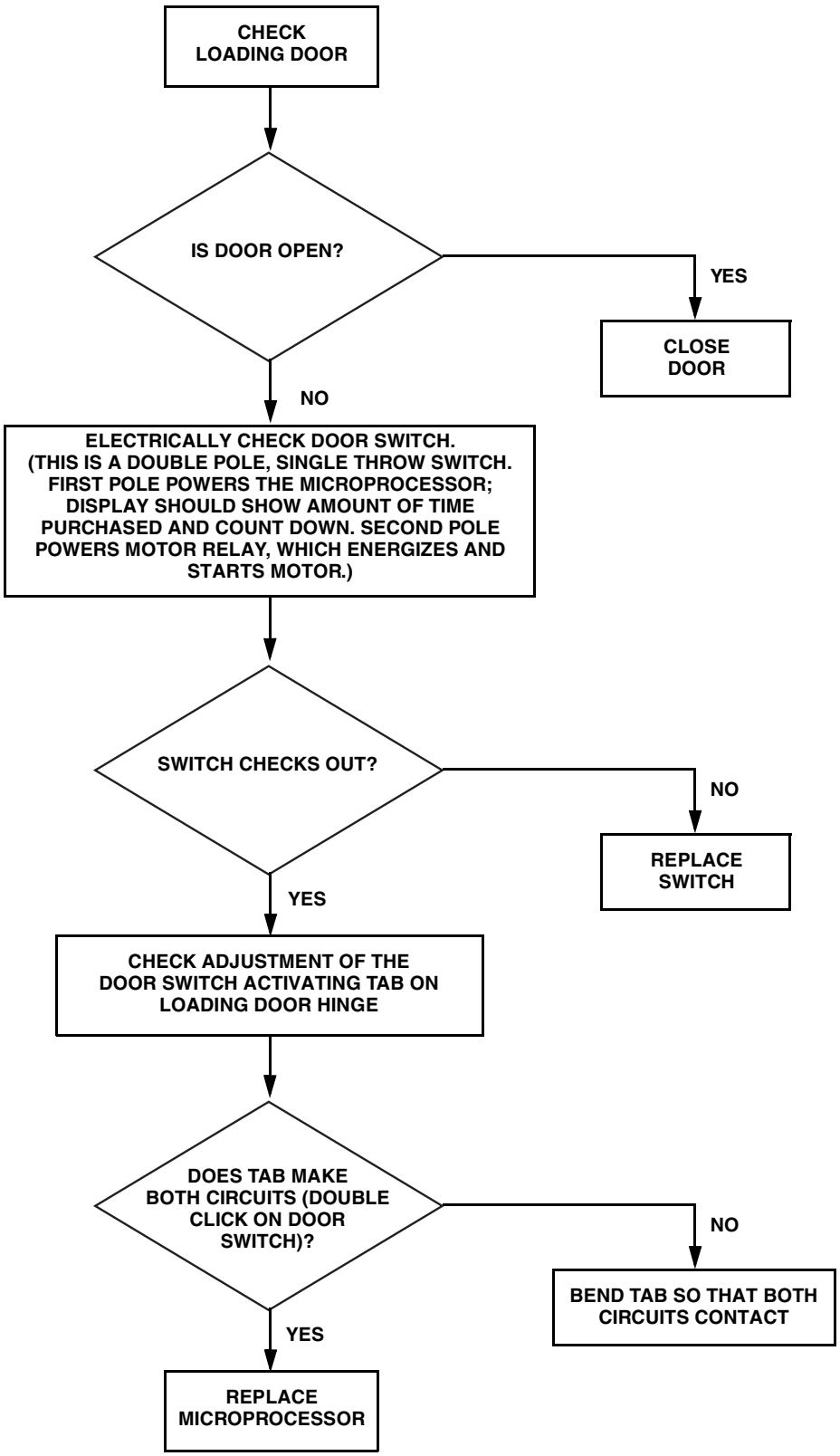
## 43. TUMBLER STARTS, BUT NO DISPLAY


CHECK LOADING DOOR
IS DOOR OPEN?
YES
CLOSE DOOR
NO
ELECTRICALLY CHECK DOOR SWITCH. (THIS IS A DOUBLE POLE, SINGLE THROW SWITCH. FIRST POLE POWERS THE MICROPROCESSOR; DISPLAY SHOULD SHOW AMOUNT OF TIME PURCHASED AND COUNT DOWN. SECOND POLE POWERS MOTOR RELAY, WHICH ENERGIZES AND STARTS MOTOR.)
SWITCH CHECKS OUT?
NO
REPLACE SWITCH
YES
CHECK ADJUSTMENT OF THE DOOR SWITCH ACTIVATING TAB ON LOADING DOOR HINGE
DOES TAB MAKE BOTH CIRCUITS (DOUBLE CLICK ON DOOR SWITCH)?
NO
BEND TAB SO THAT BOTH CIRCUITS CONTACT
YES
REPLACE MICROPROCESSOR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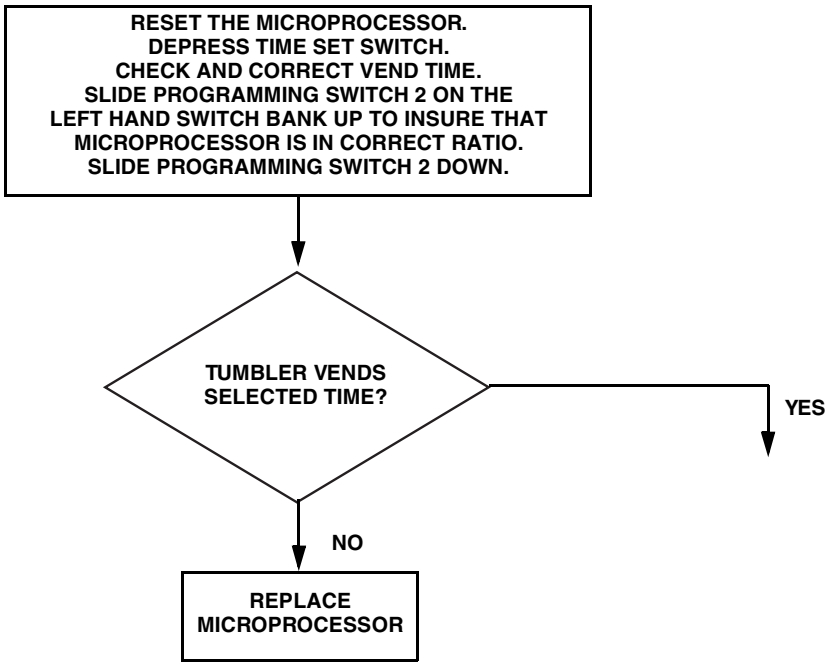
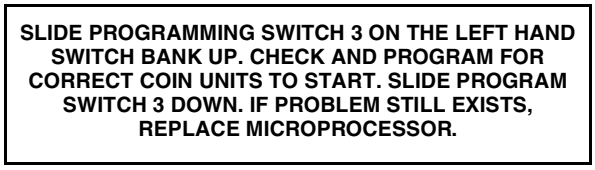
## 44. TUMBLER DOES NOT VEND SELECTED TIME




## 45. COINS INSERTED AND ACCEPTED, *MORE COINS* LED COMES ON


SLIDE PROGRAMMING SWITCH 3 ON THE LEFT HAND
SWITCH BANK UP. CHECK AND PROGRAM FOR
CORRECT COIN UNITS TO START. SLIDE PROGRAM
SWITCH 3 DOWN. IF PROBLEM STILL EXISTS,
REPLACE MICROPROCESSOR.

## 46. TUMBLER FUNCTIONS NORMALLY, BUT APPROPRIATE LED(S) DO NOT LIGHT

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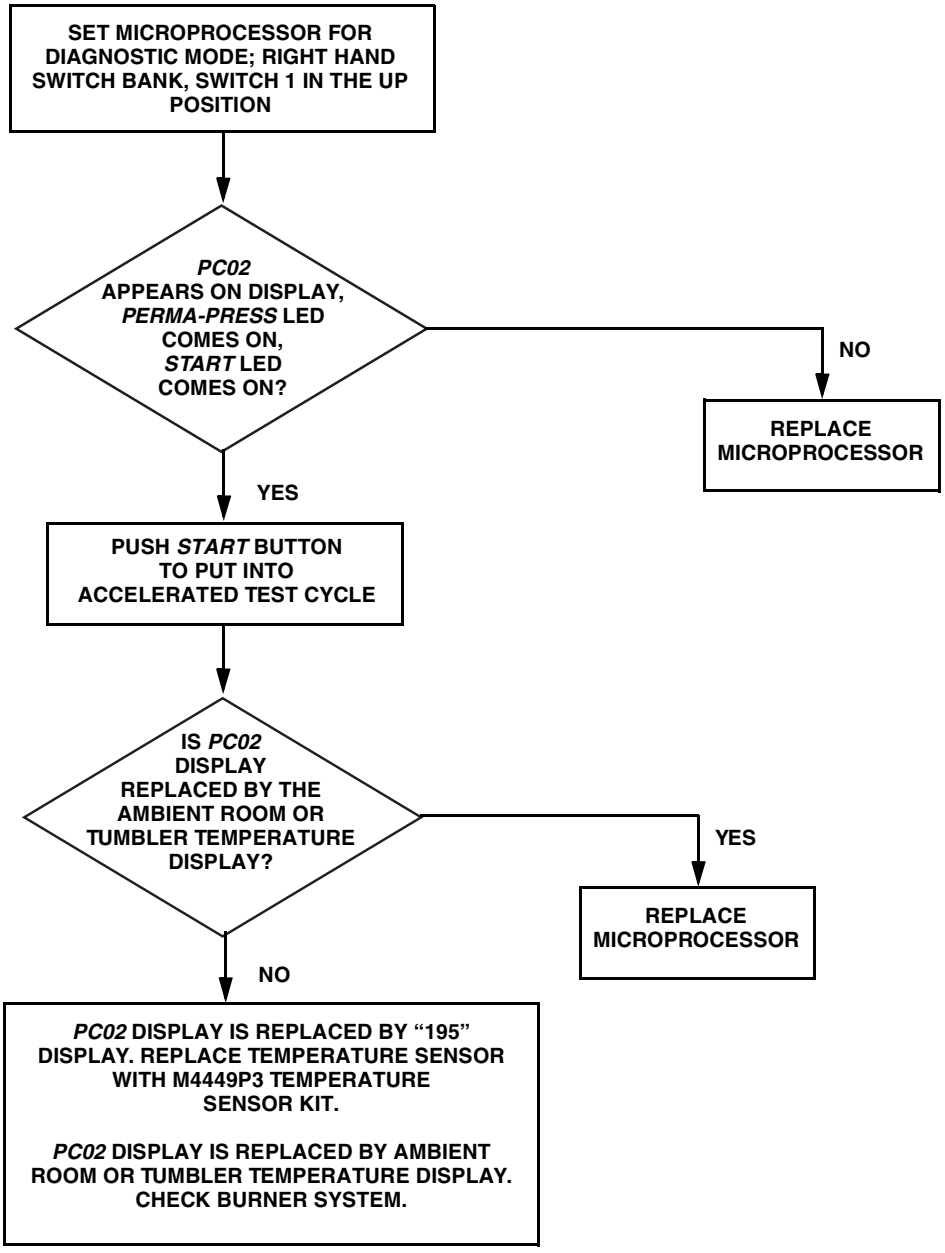
## 47. TUMBLER STARTS RUN CYCLE, BUT NO HEAT


SET MICROPROCESSOR FOR DIAGNOSTIC MODE; RIGHT HAND SWITCH BANK, SWITCH 1 IN THE UP POSITION
PC02 APPEARS ON DISPLAY, PERMA-PRESS LED COMES ON, START LED COMES ON?
NO
REPLACE MICROPROCESSOR
YES
PUSH START BUTTON TO PUT INTO ACCELERATED TEST CYCLE
IS PC02 DISPLAY REPLACED BY THE AMBIENT ROOM OR TUMBLER TEMPERATURE DISPLAY?
YES
REPLACE MICROPROCESSOR
NO
PC02 DISPLAY IS REPLACED BY "195" DISPLAY. REPLACE TEMPERATURE SENSOR WITH M4449P3 TEMPERATURE SENSOR KIT.
PC02 DISPLAY IS REPLACED BY AMBIENT ROOM OR TUMBLER TEMPERATURE DISPLAY. CHECK BURNER SYSTEM.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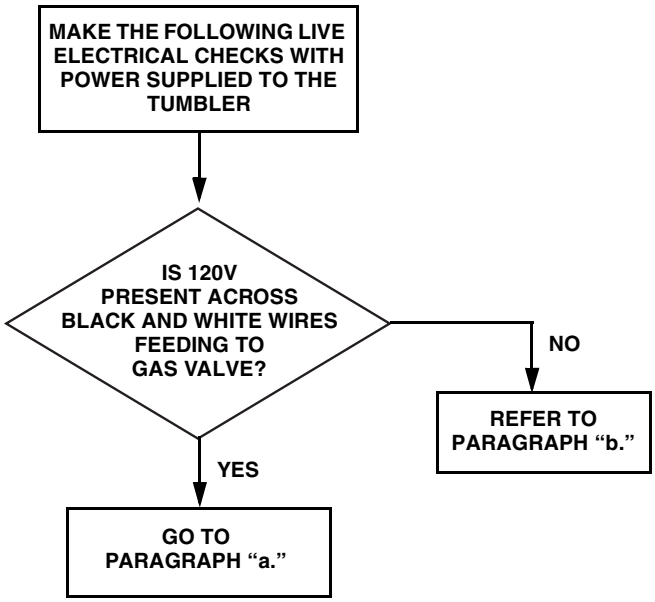
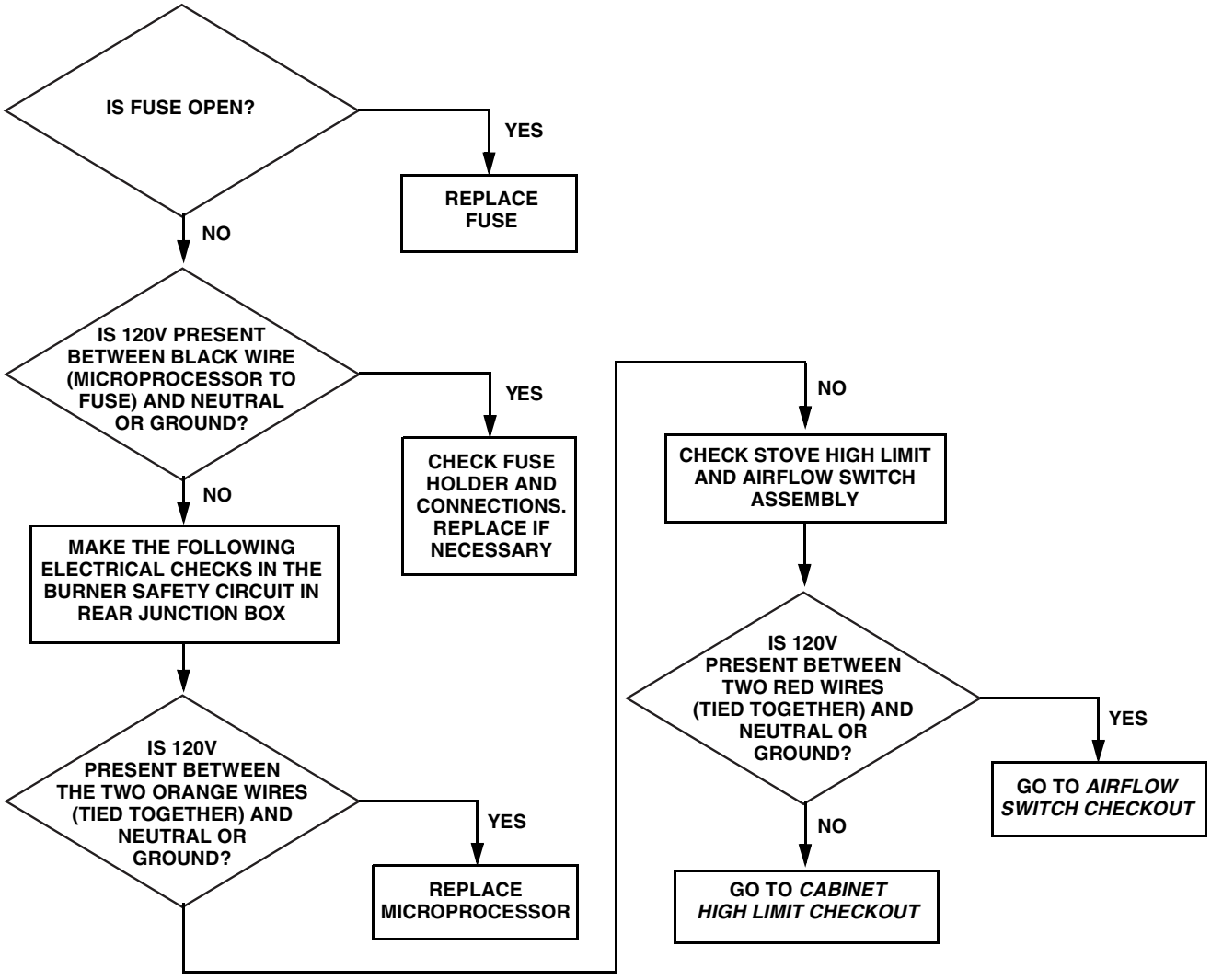
## 48. TEMPERATURE SENSOR CHECKS OUT, BUT NO IGNITION SYSTEM (GLOWBAR AND INSTANT ELECTRONIC IGNITION [I.E.I.] SYSTEM MODELS)


MAKE THE FOLLOWING LIVE ELECTRICAL CHECKS WITH POWER SUPPLIED TO THE TUMBLER
IS 120V PRESENT ACROSS BLACK AND WHITE WIRES FEEDING TO GAS VALVE?
NO
REFER TO PARAGRAPH "b."
YES
GO TO PARAGRAPH "a."

### a. Check control fuse located on left side wall of front control compartment


IS FUSE OPEN?
YES
REPLACE FUSE
NO
IS 120V PRESENT BETWEEN BLACK WIRE (MICROPROCESSOR TO FUSE) AND NEUTRAL OR GROUND?
YES
CHECK FUSE HOLDER AND CONNECTIONS. REPLACE IF NECESSARY
NO
MAKE THE FOLLOWING ELECTRICAL CHECKS IN THE BURNER SAFETY CIRCUIT IN REAR JUNCTION BOX
IS 120V PRESENT BETWEEN THE TWO ORANGE WIRES (TIED TOGETHER) AND NEUTRAL OR GROUND?
YES
REPLACE MICROPROCESSOR
NO
CHECK STOVE HIGH LIMIT AND AIRFLOW SWITCH ASSEMBLY
IS 120V PRESENT BETWEEN TWO RED WIRES (TIED TOGETHER) AND NEUTRAL OR GROUND?
YES
GO TO *AIRFLOW SWITCH CHECKOUT*
NO
GO TO *CABINET HIGH LIMIT CHECKOUT*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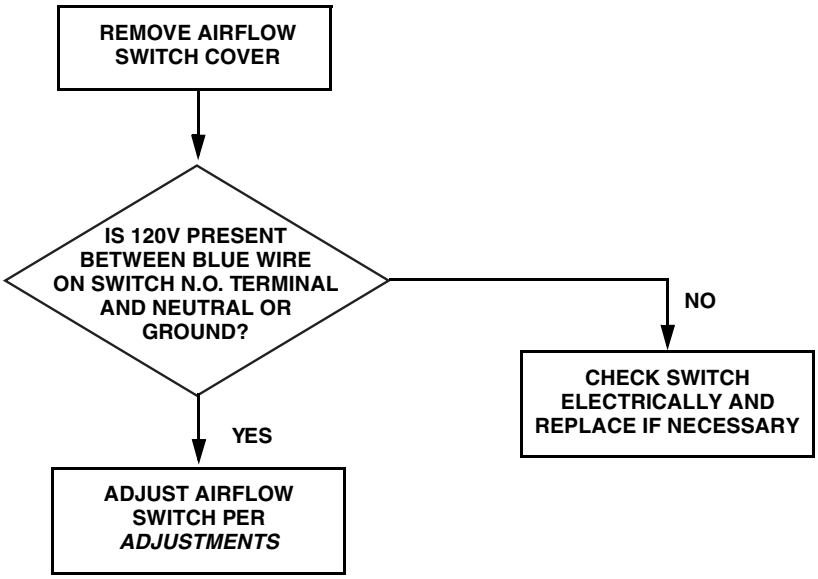
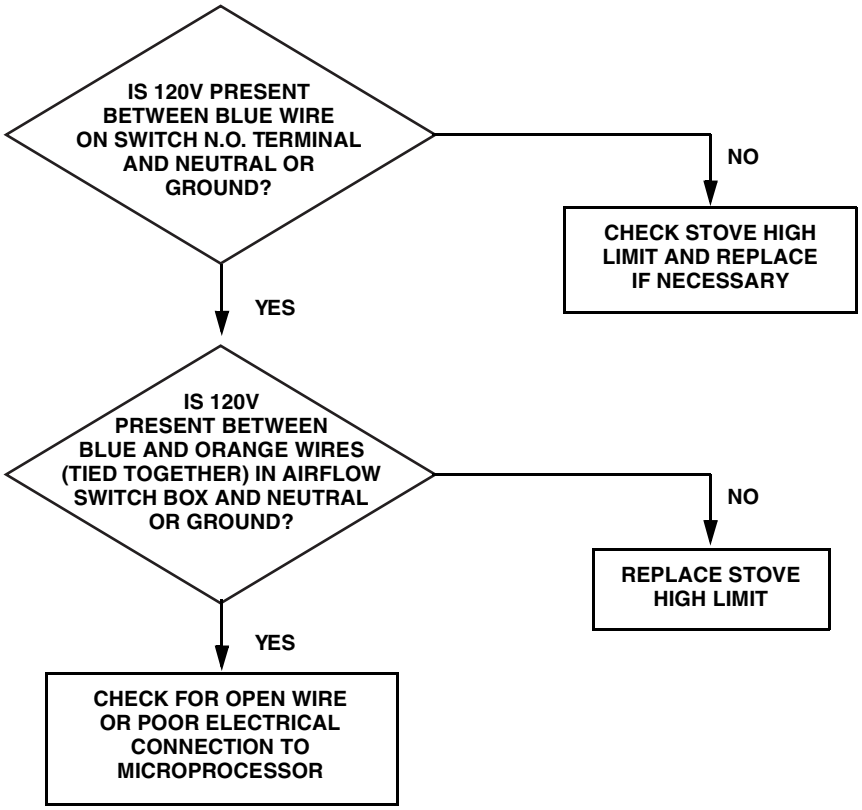
**Airflow Switch Checkout:**


REMOVE AIRFLOW SWITCH COVER
IS 120V PRESENT BETWEEN BLUE WIRE ON SWITCH N.O. TERMINAL AND NEUTRAL OR GROUND?
NO
CHECK SWITCH ELECTRICALLY AND REPLACE IF NECESSARY
YES
ADJUST AIRFLOW SWITCH PER *ADJUSTMENTS*

**Cabinet High Limit Checkout:**


IS 120V PRESENT BETWEEN BLUE WIRE ON SWITCH N.O. TERMINAL AND NEUTRAL OR GROUND?
NO
CHECK STOVE HIGH LIMIT AND REPLACE IF NECESSARY
YES
IS 120V PRESENT BETWEEN BLUE AND ORANGE WIRES (TIED TOGETHER) IN AIRFLOW SWITCH BOX AND NEUTRAL OR GROUND?
NO
REPLACE STOVE HIGH LIMIT
YES
CHECK FOR OPEN WIRE OR POOR ELECTRICAL CONNECTION TO MICROPROCESSOR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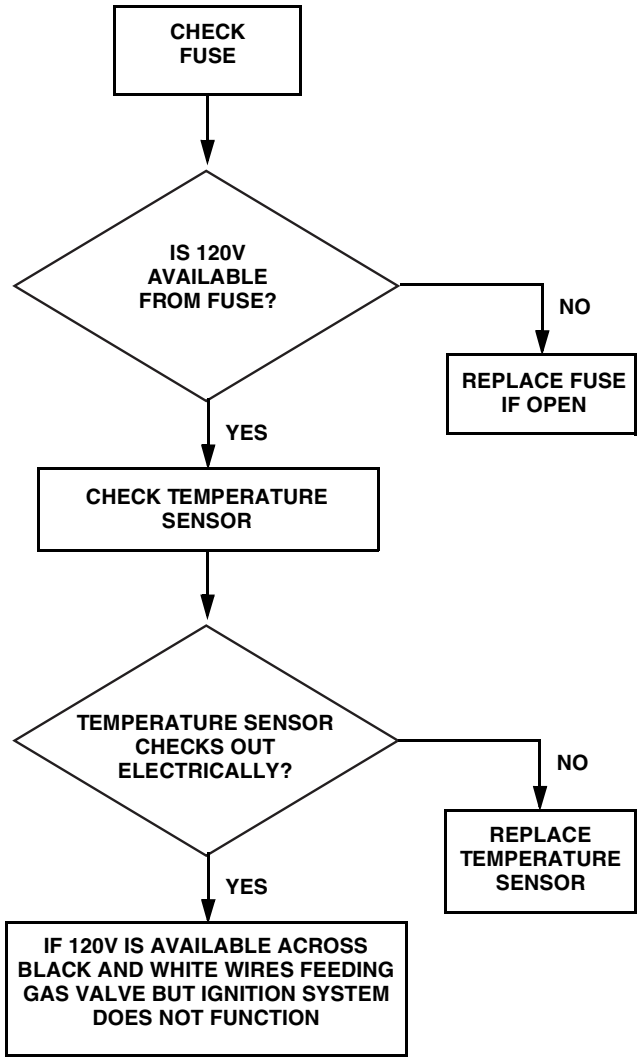
b. **Go to rear junction box and make the following electrical checks in the burner safety circuit**


CHECK FUSE
IS 120V AVAILABLE FROM FUSE?
NO
REPLACE FUSE IF OPEN
YES
CHECK TEMPERATURE SENSOR
TEMPERATURE SENSOR CHECKS OUT ELECTRICALLY?
NO
REPLACE TEMPERATURE SENSOR
YES
IF 120V IS AVAILABLE ACROSS BLACK AND WHITE WIRES FEEDING GAS VALVE BUT IGNITION SYSTEM DOES NOT FUNCTION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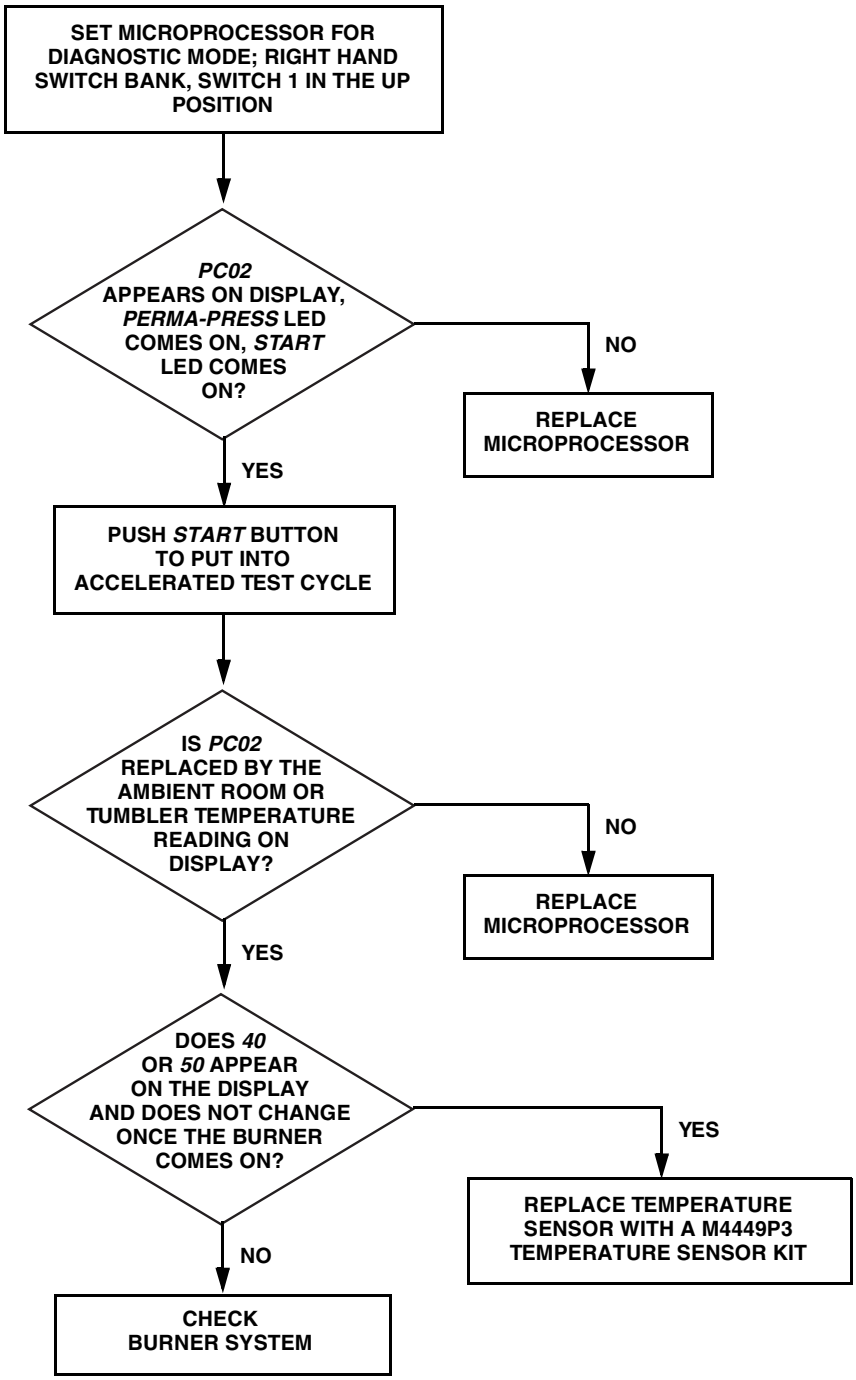
## 49. TUMBLER OVERDRYING LOADS


SET MICROPROCESSOR FOR DIAGNOSTIC MODE; RIGHT HAND SWITCH BANK, SWITCH 1 IN THE UP POSITION
PC02 APPEARS ON DISPLAY, PERMA-PRESS LED COMES ON, START LED COMES ON?
NO
REPLACE MICROPROCESSOR
YES
PUSH START BUTTON TO PUT INTO ACCELERATED TEST CYCLE
IS PC02 REPLACED BY THE AMBIENT ROOM OR TUMBLER TEMPERATURE READING ON DISPLAY?
NO
REPLACE MICROPROCESSOR
YES
DOES 40 OR 50 APPEAR ON THE DISPLAY AND DOES NOT CHANGE ONCE THE BURNER COMES ON?
YES
REPLACE TEMPERATURE SENSOR WITH A M4449P3 TEMPERATURE SENSOR KIT
NO
CHECK BURNER SYSTEM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# Section 4
# Grounding

## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

## WARNING

**To reduce the risk of fire and electric shock, check with a qualified serviceperson for proper grounding procedures. Improper connection of the equipment grounding conductor may result in a risk of electric shock.**

W313

## WARNING

**To reduce the risk of fire and electric shock, if electrical supply is coming from a three phase service, DO NOT connect a "High Leg" or "Stinger Leg" to a single phase machine. On a three phase machine, if there is a "High Leg" or "Stinger Leg" it should be connected to L3.**

W069

## Grounding Instructions

This drying tumbler must be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electric shock by providing the path of least resistance for electric current. This tumbler must be connected to a grounded metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the appropriate ground location.

**NOTE: To ensure protection against shock, this tumbler MUST be electrically grounded in accordance with local codes, or in the absence of local codes, with the latest edition of the National Electrical Code ANSI/NFPA No. 70. In Canada the electrical connections are to be made in accordance with CSA C22.1 or the latest edition of the Canadian Electrical Code, Part I and/or local codes. Electrical work should be done by a qualified electrician.**

## WARNING

**All electrical connections should be made by a qualified electrician.**

**To reduce the risk of electrical shock, de-energize the electrical circuit being connected to the tumbler before making any electrical connections. Never attempt to connect a live circuit.**

W070


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# Section 5
# Service Procedures

## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**IMPORTANT: References made to the left or right hand direction are taken from the operator's position facing the front of the tumbler.**

**50. CONTROL PANEL**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.

b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.

c. Lift control panel brackets off front panel.

d. Disconnect wire harness Molex plug and remove control panel. Refer to *Figure 2*.

**NOTE: Refer to wiring diagram when rewiring control panel.**

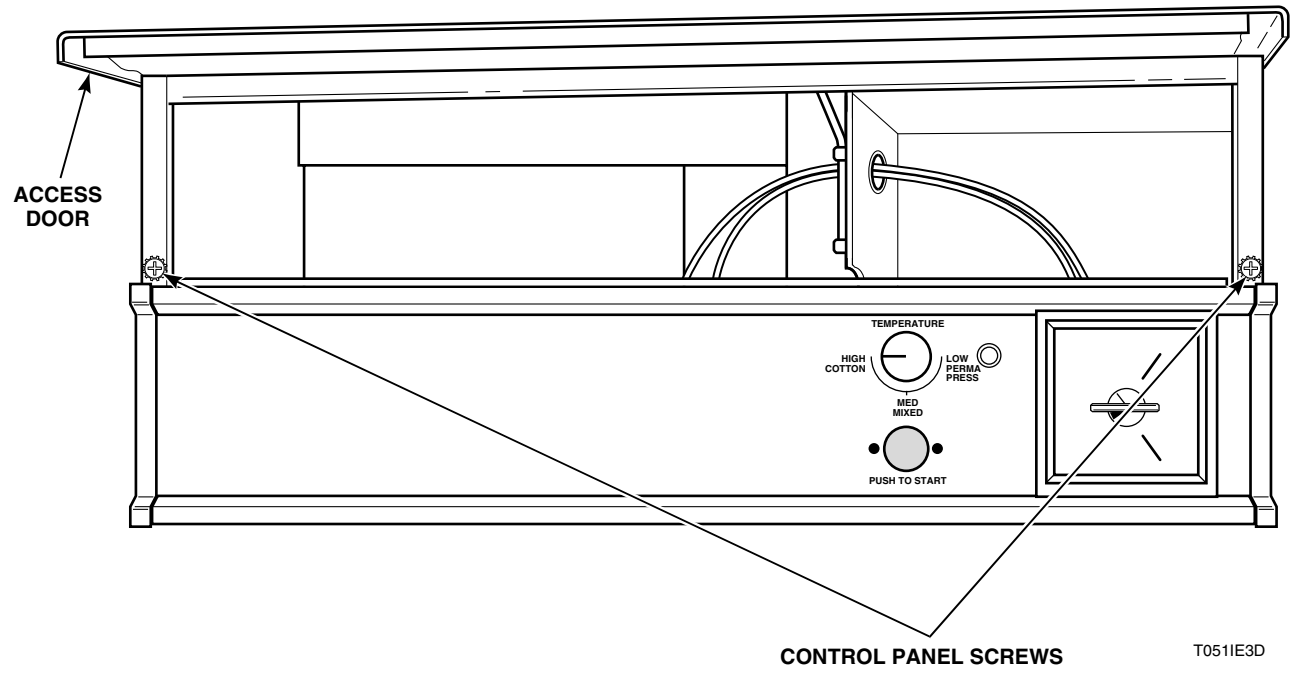


Figure 1


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 51. RUN LIGHT OR SIGNAL LIGHT

**NOTE: Follow the same procedures for either the run light or the signal light.**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect wires from light terminal.

**NOTE: Refer to wiring diagram when rewiring light.**

e. Remove light.

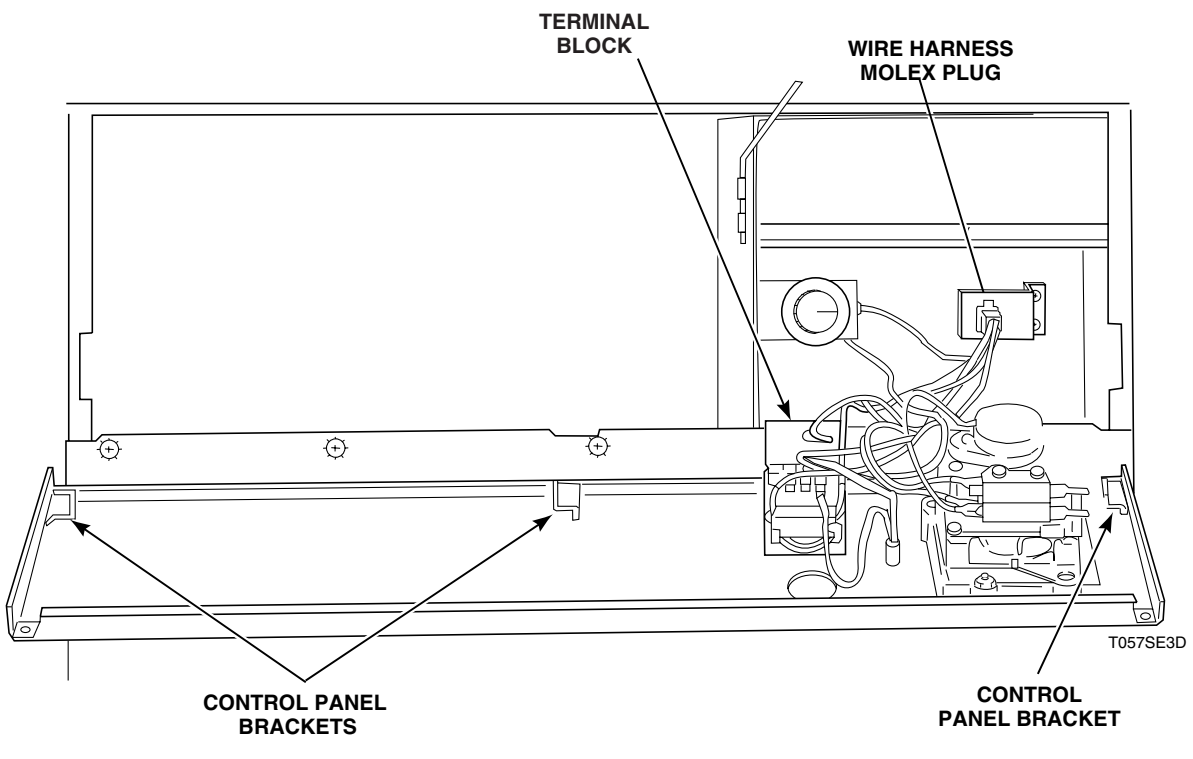


Figure 2


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**52. PUSH-TO-START SWITCH ASSEMBLY**

**Nonmicroprocessor Models**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding start switch assembly to control panel, refer to *Figure 1*.
c. Disconnect wires from switch.

**NOTE: Refer to wiring diagram when rewiring switch.**

**Non-Coin Microprocessor Models with Timer Switch Button**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet.
c. Lift control panel brackets off front panel and support panel.
d. Remove nut securing switch to plate and instruction plate. Refer to *Figure 3*. Refer to Parts Manual for assembly.
e. Remove timer switch. Remove backup nut from push button shaft. Refer to *Figure 3*.
f. Disconnect wires from switch.

**NOTE: Refer to wiring diagram when rewiring switch.**

**53. TERMINAL BLOCK(S)**

(Figure 2)

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Remove screws holding terminal block(s) to bracket.
e. Disconnect all wires from terminal block(s).

**NOTE: Refer to wiring diagram when rewiring switch.**


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 54. MICROPROCESSOR

**IMPORTANT: Due to the sensitivity of the microprocessor, careful handling is required. As a precautionary measure, we recommend using a ground wrist strap when handling the electronic control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground. By using this static protection device, potential electrostatic discharge problems associated with handling of microprocessor will be minimized. Always handle electronic control by its metal edges. If a wrist strap is not available, touch tumbler while it is plugged in before handling control to dissipate any charge.**

**NOTE: New control is supplied in a special anti-static wrapping, and protected by anti-static foam. While holding control by its metal edges, remove control from foam and wrapping.**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*. Lift control panel brackets off front panel. Refer to *Figure 2*.
c. Lift control panel brackets off front panel, Figure 2.
d. Remove three screws holding microprocessor to cabinet.

**IMPORTANT: Handle microprocessor by the sides only. Do not touch circuit boards on the back side of microprocessor.**

e. Disconnect sensor plug from microprocessor. Refer to *Figure 3*.
f. Pull microprocessor away from cabinet and disconnect Molex plug. Refer to *Figure 3*.
g. Disconnect two wires from relay.
h. Place microprocessor in a clean, dry location where it cannot be damaged.

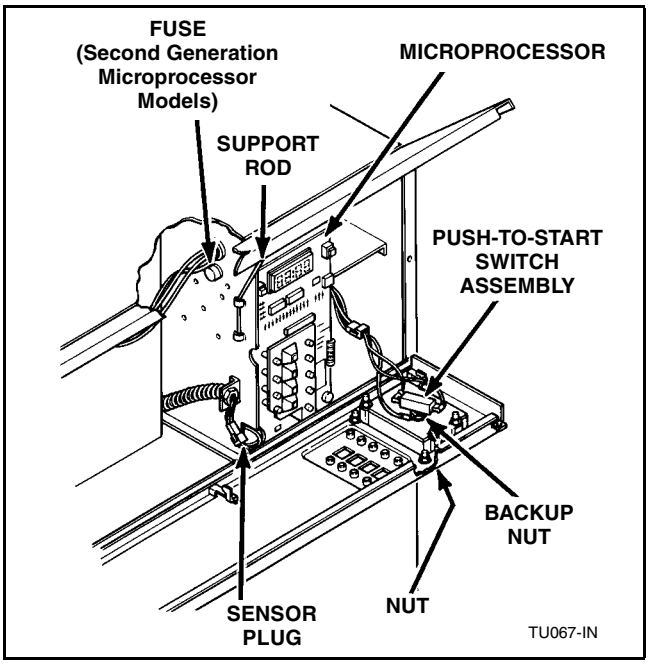


Figure 3


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 55. FUSE AND FUSE HOLDER ASSEMBLY – MICROPROCESSOR MODELS ONLY

**NOTE: Fuse location is different for first and second generation microprocessor models. For first generation models (through Serial No. XTEK069004TC) fuse assembly is located in bottom access hole of junction box on rear tumbler panel. Refer to *Figure 4*. For second generation models, fuse is located behind access panel on left side of control box. Refer to *Figure 3*.**

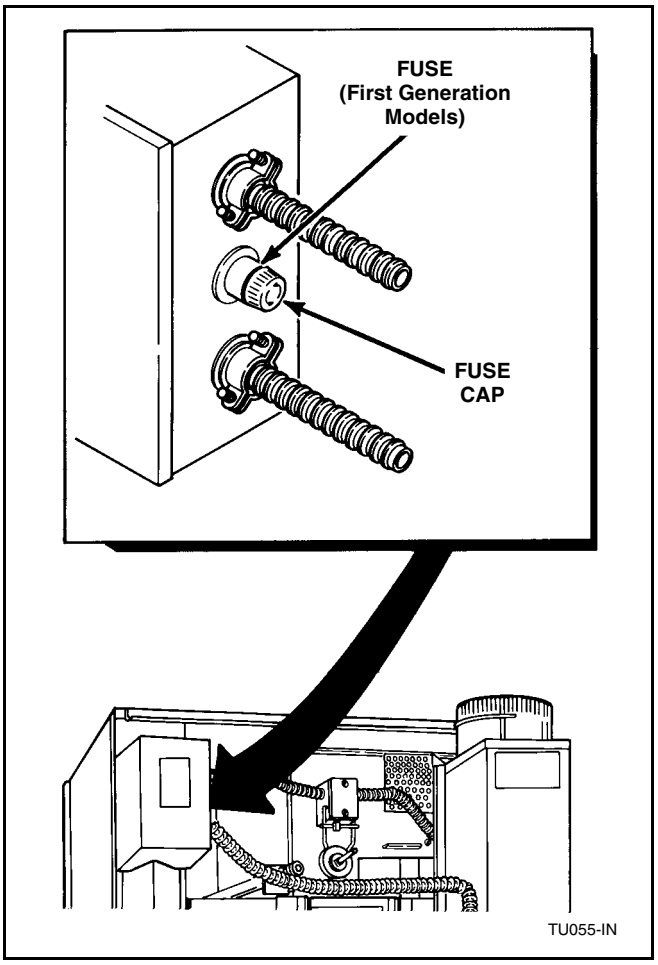


Figure 4

a. Second generation models (starting Serial No. XTEK0569005TC): Unlock and open access panel. Swing support rod under panel.
b. Turn fuse cap counterclockwise to remove fuse. Refer to *Figure 5*.
c. Remove fuse from fuse cap. Refer to *Figure 5*.

**NOTE: Refer to wiring diagram when rewiring fuse.**

d. Disconnect wires from fuse holder.
e. Remove plastic retaining nut and remove assembly. Refer to *Figure 5*.

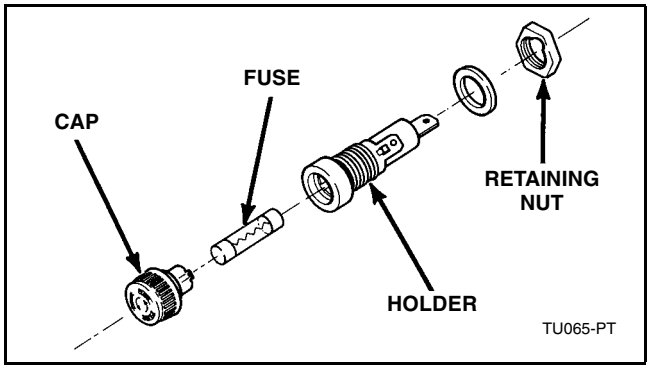


Figure 5


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**56. COIN METER ASSEMBLY**

**Nonmicroprocessor Models:**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws attaching control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Remove speed nuts holding coin meter to meter frame. Refer to *Figure 6*.
e. Disconnect all wires from coin meter. Refer to *Figure 6*.

**NOTE: Refer to wiring diagram when rewiring meter.**

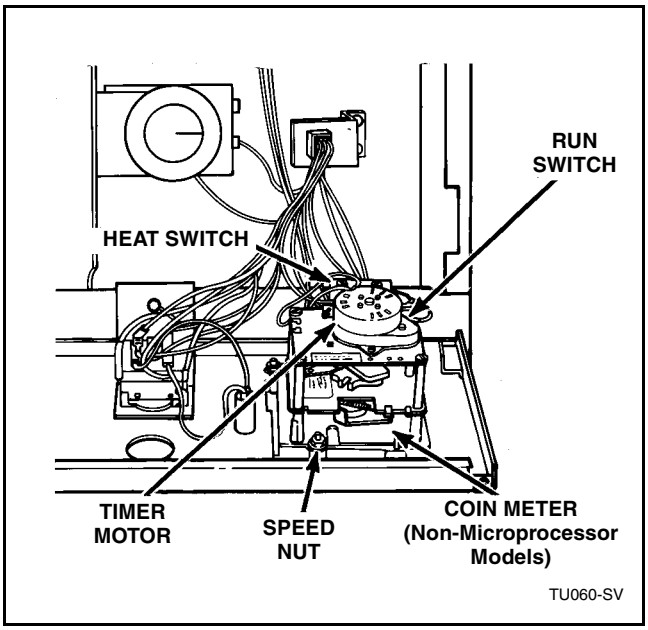


Figure 6

**First Generation Microprocessor Models (Through Serial No. XTEK0569004TC):**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Remove speed nuts holding coin meter to meter frame. Refer to *Figure 7*.
e. Disconnect wires from coin switch terminals.

**NOTE: Refer to wiring diagram when rewiring meter.**

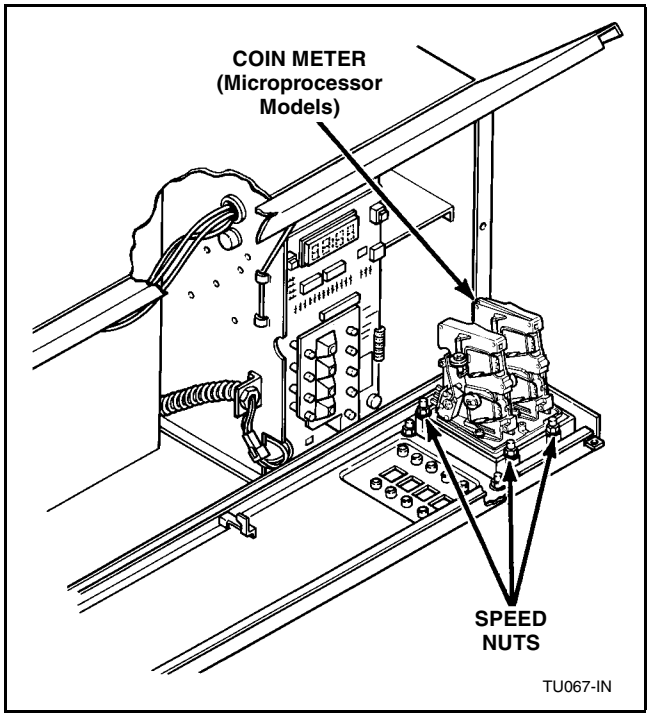


Figure 7

**Second Generation Microprocessor Models (Starting Serial No. XTEK0569005TC):**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws attaching control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Remove speed nuts holding coin drop to meter frame. Refer to *Figure 7*.
e. Disconnect wiring harness and remove coin drop.


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**Coin Meter Timer Motor – Nonmicroprocessor Models Only**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect timer motor leads. Refer to *Figure 6*.

**NOTE: Refer to wiring diagram when rewiring timer motor.**

e. Remove two screws holding timer motor to coin meter. Refer to *Figure 8*.
f. Remove timer motor from cam, drive fork, and coin meter Refer to *Figure 8*..

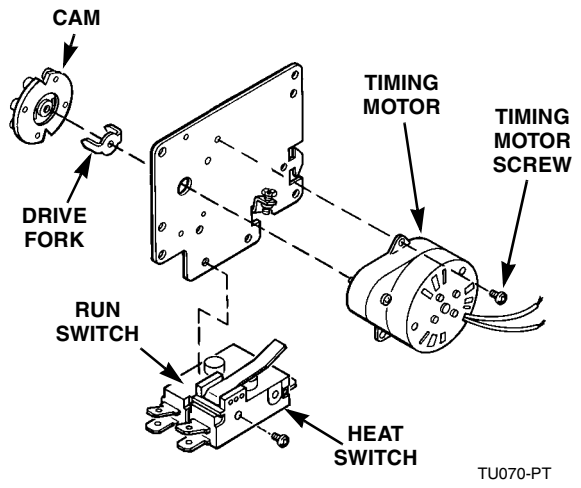


Figure 8

**Heat or Run Switch – Nonmicroprocessor Coin Meter Models Only**

**NOTE: Run switch is marked "A" and heat switch is marked "B".**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect wires from appropriate switch. Refer to *Figure 7*.

**NOTE: Refer to wiring diagram when rewiring switches.**

e. Remove two screws holding switches to coin meter. Refer to *Figure 8*.


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 57. COIN SLIDE

(Refer to *Figure 9*)

a. Unlock and open access panel. To hold panel open, swing support rod under panel.

b. Remove screw holding escutcheon to frame. Tip escutcheon down and slide to the left to remove from hinge pin. Remove escutcheon.

c. Remove screws holding slide extension and coin slide. Remove coin slide.

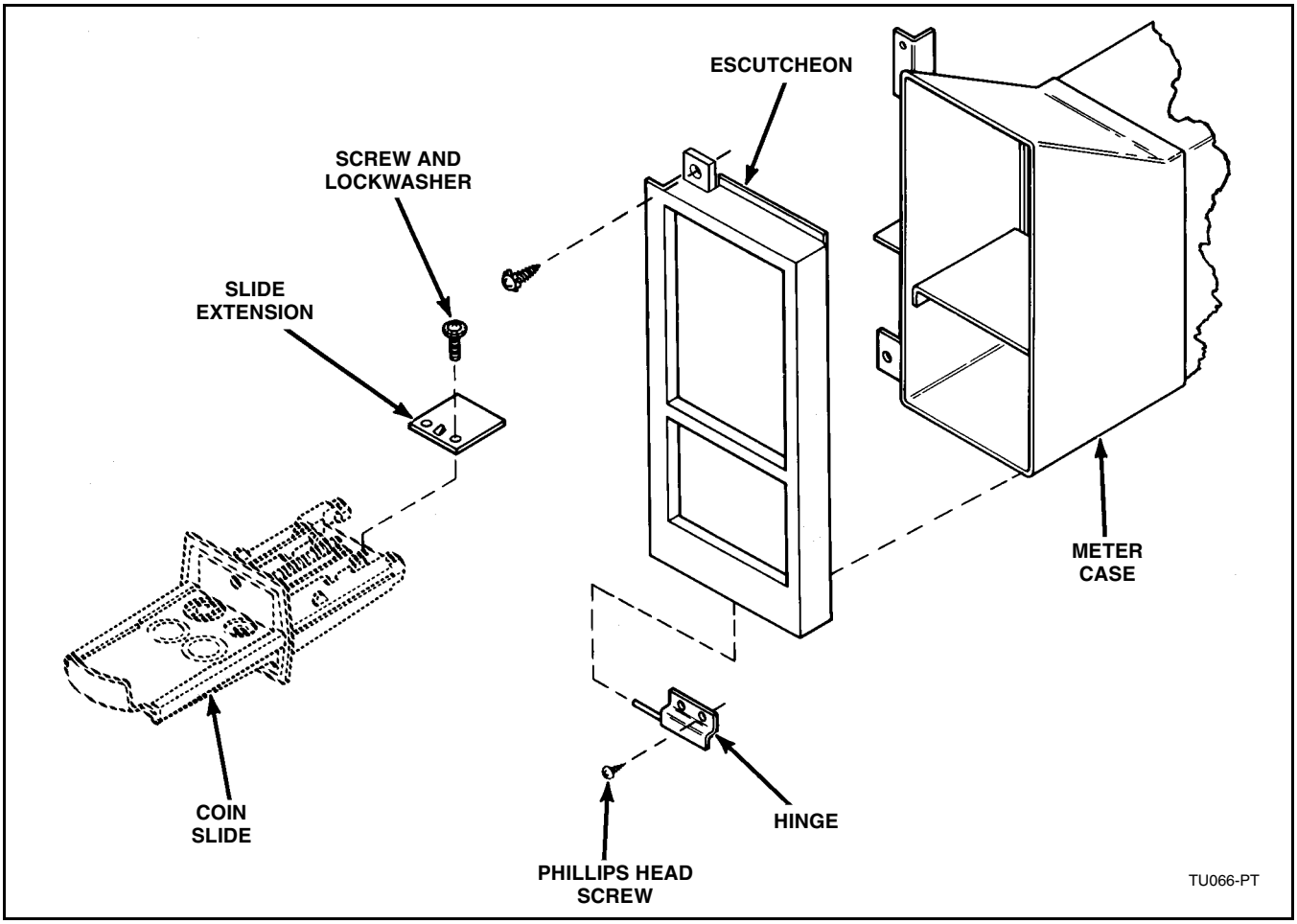


Figure 9


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**58. ACCUMULATOR**

(Refer to *Figure 10*)

a. Unlock and open access panel. To hold panel open, swing support rod under panel.

b. Unlock service door on meter case.

c. Lift service door with accumulator and mounting bracket attached to meter case.

d. Disconnect wires from accumulator terminals.

**NOTE: Refer to wiring diagram when rewiring accumulator.**

e. Remove screws and lockwashers holding accumulator to mounting bracket.

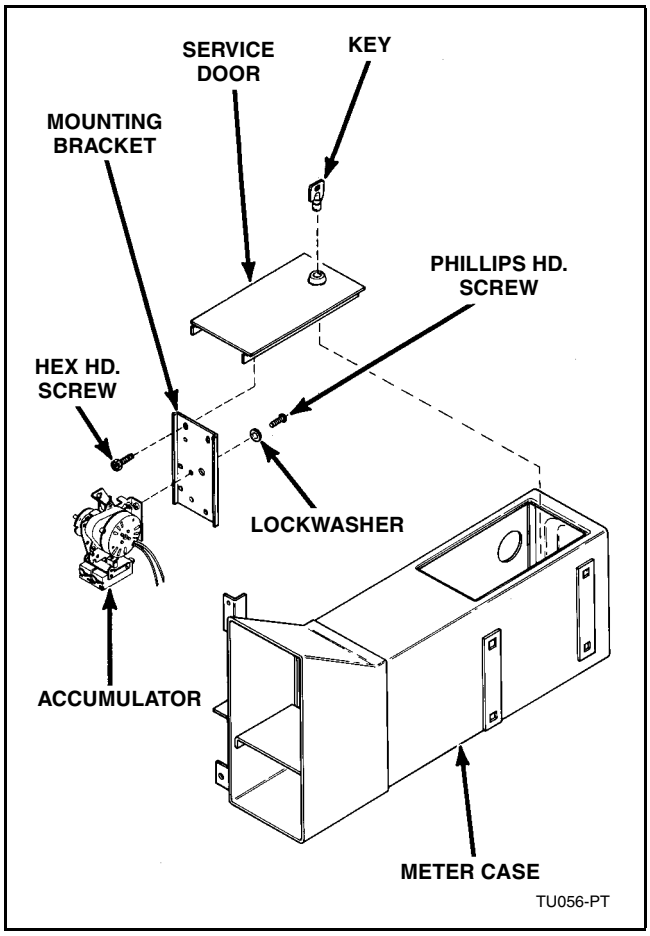


Figure 10


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 59. MANUAL TIMER ASSEMBLY

(Refer to *Figure 11*)

a. Timer

**NOTE: Follow the same procedures for both the drying and cool-down timers.**

(1) Unlock and open access panel. To hold panel open, swing support rod under panel.
(2) Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
(3) Lift control panel brackets off front panel.Refer to *Figure 2*.
(4) Pull timer knob off shaft.
(5) Remove three screws holding the timer, barrier (drying timer only), and bracket to control panel. Remove barrier.
(6) Remove wires from timer and remove timer.

**NOTE: Refer to wiring diagram when rewiring timer.**

b. Relay

(1) Unlock and open access panel. To hold panel open, swing support rod under panel.
(2) Remove two screws attaching control panel to cabinet. Refer to *Figure 1*.
(3) Lift control panel brackets off front panel. Refer to *Figure 2*.
(4) Remove two screws holding relay to timer bracket.
(5) Remove wires and remove relay.

**NOTE: Refer to wiring diagram when rewiring relay.**

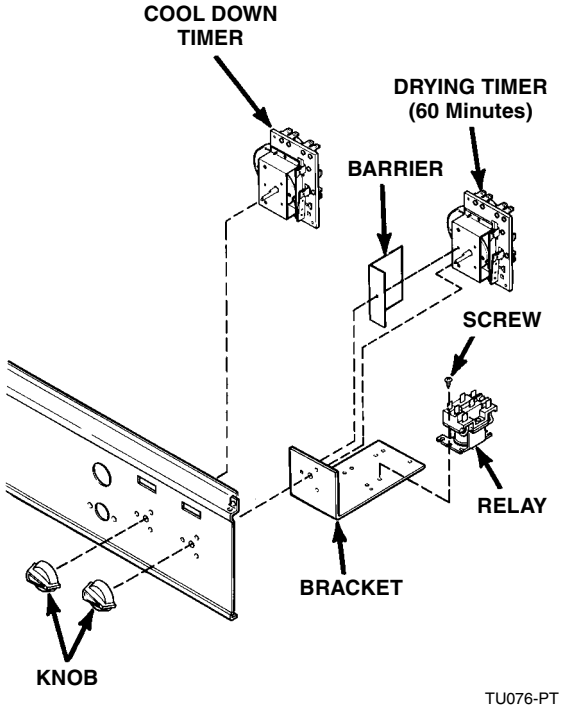


Figure 11


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**60. BURNER SYSTEM COMPONENTS (GAS MODELS)**

**Complete Gas Valve Assembly**

a. Unlock and open access door. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Close manual gas supply valve. Refer to *Figure 12*.
e. Disconnect all wires from gas valve and disconnect gas valve pipe unions. Refer to *Figure 12*.
f. Remove spudholder from left side of valve and plug from right side of valve. Refer to *Figure 12*.

**IMPORTANT: When reinstalling gas valve, purge air and sediment from the gas service line before connecting it loosely to the tumbler. Purge remaining air until odor of gas is detected, then tighten connection. Use pipe compound resistant to action of L.P. gas on all pipe threads.**

## WARNING

**To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!**

W310

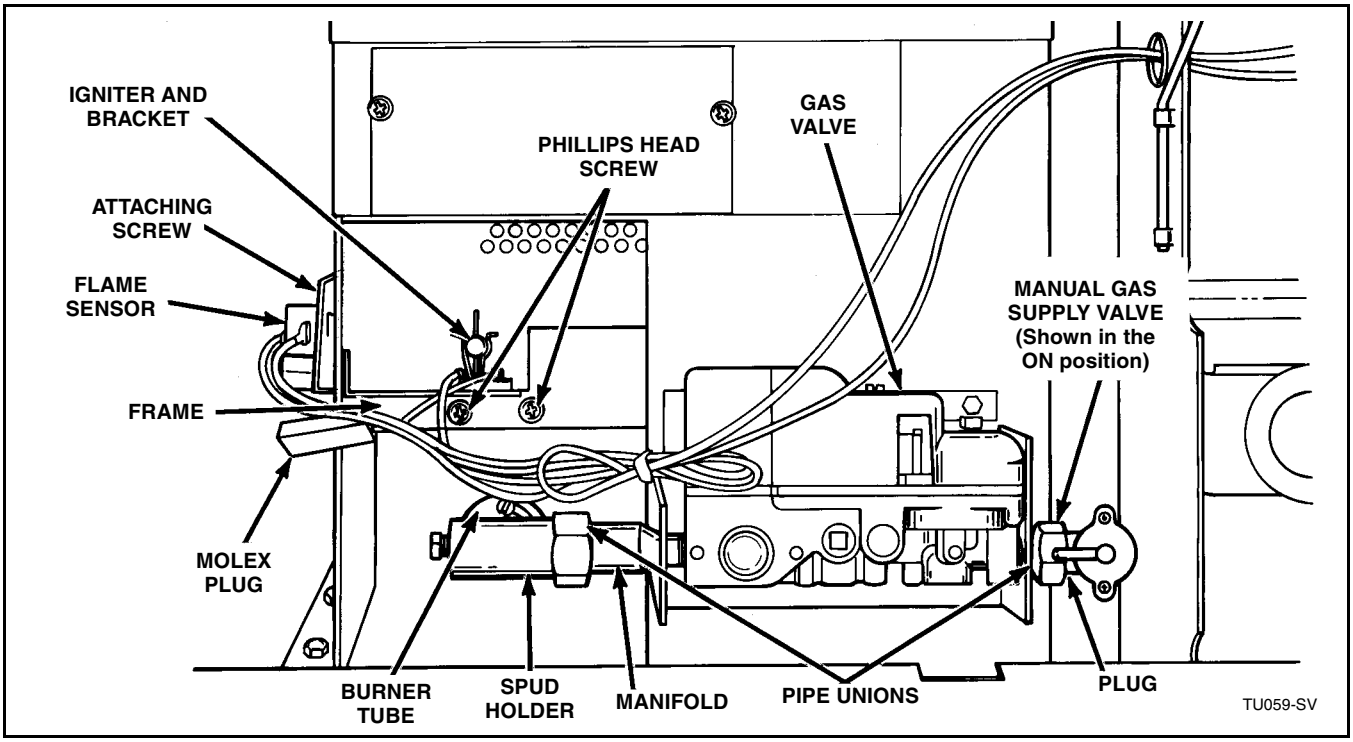


Figure 12


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

g. Remove screws holding gas valve and bracket to stove assembly. Refer to *Figure 12*.

**NOTE: The holding coil, booster coil, and secondary coil can be replaced individually or in a kit. Refer to the parts manual for the part number(s).**

**Burner Tube Assembly**

a. Unlock and open access panel. Remove control panel assembly.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Close manual gas supply valve. Refer to *Figure 12*.
e. Disconnect gas valve pipe union attaching manifold to spudholder and remove spudholder. Refer to *Figure 12*.
f. Remove screws holding burner tube to stove frame and remove burner tube. Refer to *Figure 12*.

## WARNING

**When reinstalling spudholder, use non-corrosive leak detection fluid to check all pipe connections for gas leaks. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS! Make sure that spudholder and orifices are positioned such that gas will be injected directly down the center of the burner.**

W269R1

**Igniter and Bracket – Glowbar Models**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Using a 90 degree tip Tru-Arc pliers, insert the pliers tips into holes in each mounting clip and spread clips just far enough for igniter removal.

**IMPORTANT: Use extreme care when handling the igniter as it is very fragile. Handle igniter by grasping the white ceramic portion only. Do not handle the silicon carbide portion of the igniter with hands or allow any oil, grease, or other foreign material to contaminate it. Hairline cracks, oil, grease, or other impurities will cause igniter to burn out.**

e. Remove screw holding igniter bracket to stove assembly.
f. Disconnect igniter from Molex plug. Refer to *Figure 12*.

**Flame Sensor – Glowbar Models**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect wires from flame sensor. Refer to *Figure 12*.

**NOTE: Refer to wiring diagram when rewiring flame sensor.**

e. Remove screw holding flame sensor to side of stove assembly.

**Igniter – Instant Electronic Ignition Models**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect high voltage lead from igniter. Refer to *Figure 13*.
e. Remove two screws holding igniter bracket to stove assembly. Refer to *Figure 13*.


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**Ignition Control – Instant Electronic Ignition Models**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Disconnect wire harness. Refer to *Figure 13*.
e. Remove high voltage lead. Refer to *Figure 13*.

**IMPORTANT: Remove circuit board and plastic back as a unit. Handle ignition control unit by sides of board only. Do not contact circuit boards with hands or metal objects. Place unit in clean dry area away from work area to avoid damage.**

f. Remove two screws holding ignition control unit to cabinet frame. Refer to *Figure 13*.
g. Remove ignition control unit. Refer to *Figure 13*.

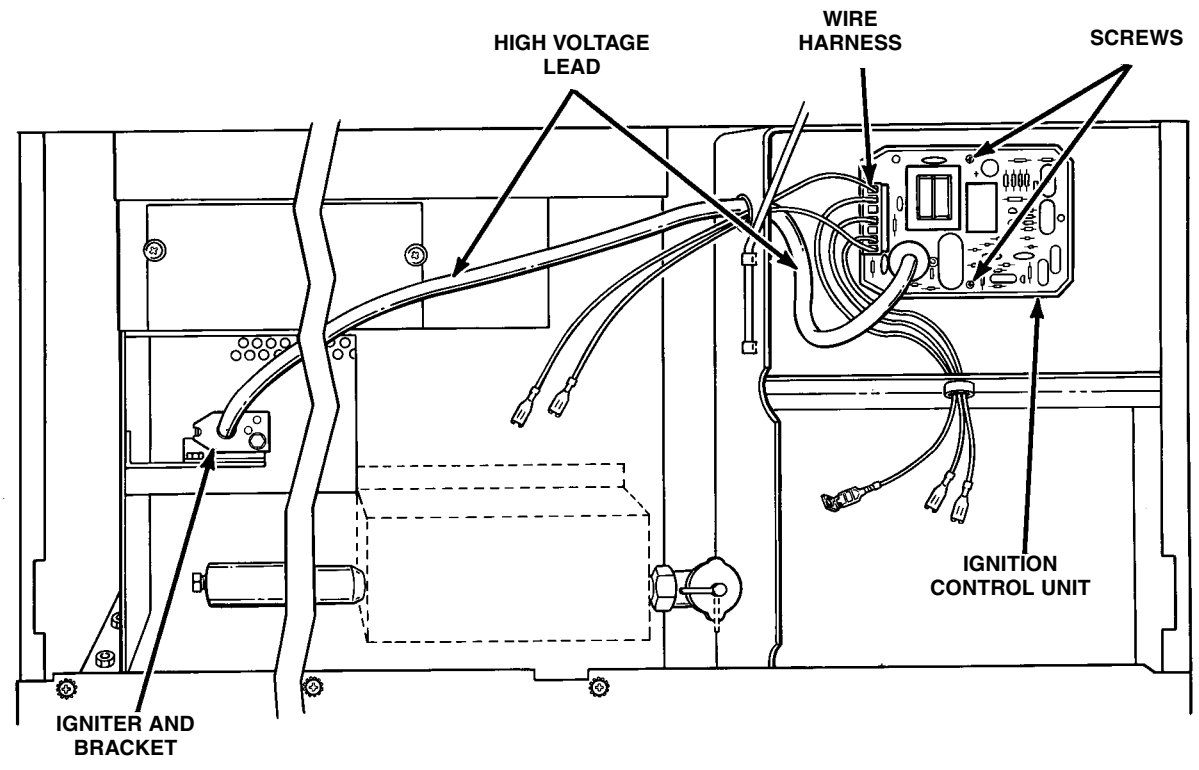


Figure 13


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 61. HEATER ELEMENT (ELECTRIC MODELS)

**NOTE: Remove heater element from the rear of the tumbler.**

a. Remove four capscrews holding mesh panel to rear of cabinet.
b. Remove nuts, disconnect wires and buss bars from element terminals. Refer to *Figure 14*.

**NOTE: Refer to appropriate wiring diagram when rewiring heater element terminals.**

c. Remove screw holding element to rear of heater housing. Refer to *Figure 14*.
d. Slide element toward front of tumbler and carefully lift element up and out of heater housing. Refer to *Figure 14*.

**NOTE: Each tumbler is equipped with three elements. Remove each element individually. To remove the bottom heating element, it may be necessary to remove four screws from heater frame assembly and lift the heater frame assembly to access the element.**

**NOTE: 50 Hertz Models only — Bottom element for 19 KW units should be 5 KW element.**


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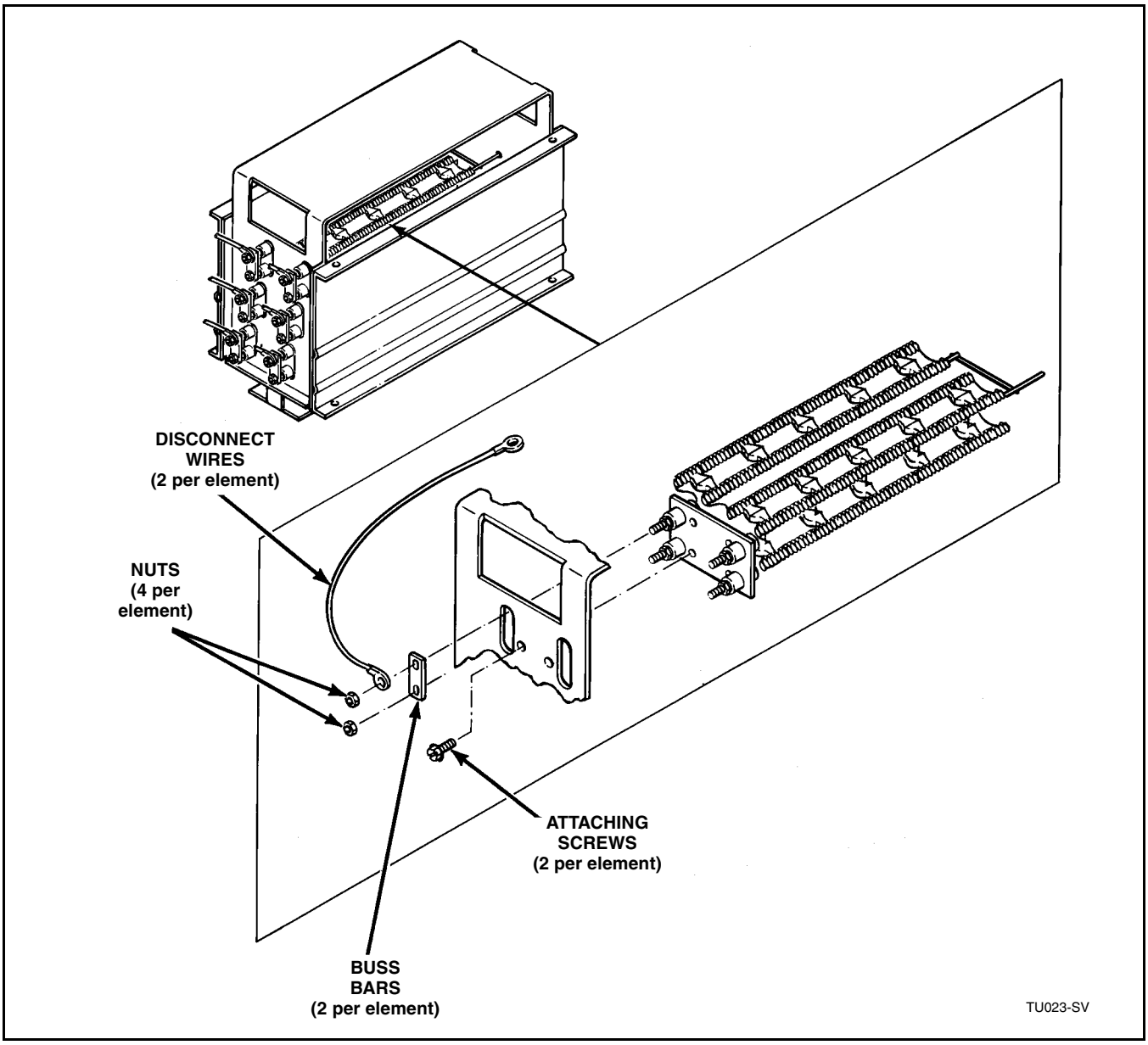


Figure 14


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**62. CONTACTORS AND TERMINAL BLOCK (ELECTRIC MODELS)**
**Refer to *Figure 15***

**NOTE: Contactors and terminal blocks are located in contactor box at the rear of the tumbler.**

## WARNING

**Contactor box cover MUST be reinstalled after servicing is completed.**

W270

a. Remove screws holding cover to contactor box and remove cover.
b. Remove wires from contactor terminals and terminal blocks.

**NOTE: Refer to appropriate wiring diagram when rewiring contactors or terminal blocks.**

c. Remove screws holding contactor to box.
d. Remove two screws holding terminal block to contactor box.
e. Reinstall contactor box cover.

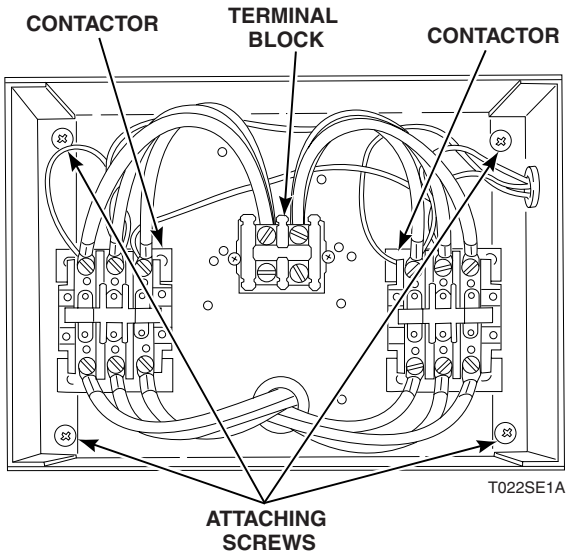


Figure 15


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**63. OPERATING THERMOSTAT (NONMICROPROCESSOR MODELS)**

a. Unlock and open access panel. To hold panel open, swing support rod under panel.
b. Remove two screws holding control panel to cabinet. Refer to *Figure 1*.
c. Lift control panel brackets off front panel. Refer to *Figure 2*.
d. Pull thermostat knob off thermostat shaft. Refer to *Figure 16*.
e. Disconnect all wires from thermostat. DO NOT attempt to disconnect thermostat sensing tube.

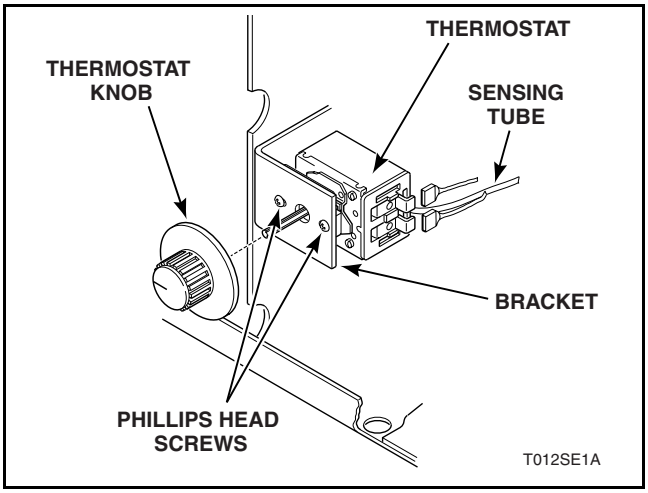


Figure 16

**NOTE: Refer to wiring diagram when rewiring thermostat.**

f. Remove two screws holding thermostat to mounting bracket. Refer to *Figure 16*.
g. Remove screws holding junction box cover and remove.
h. Remove screws holding wire cover to rear of tumbler. Refer to *Figure 17*.
i. Carefully cut wire ties holding wires and sensing tube to cabinet.
j. Unlock and open lint panel door.
k. Spread locking tabs on sensing probe bracket. Refer to *Figure 18*.
l. Carefully feed sensing probe through openings in rear panel of lint compartment, rear of cabinet junction box, control box and front of cabinet, and remove thermostat.

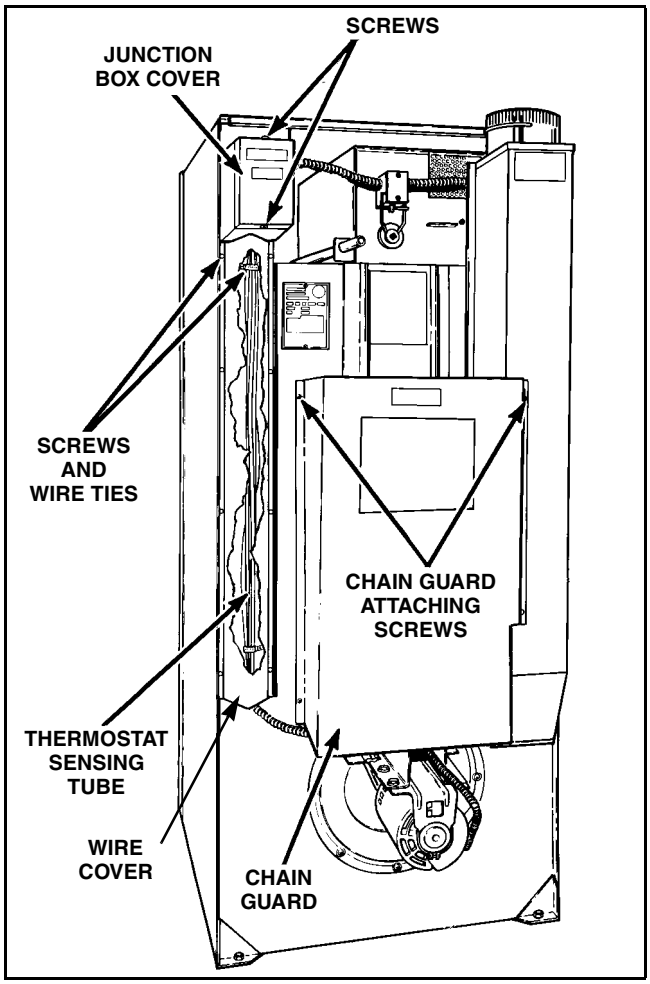


Figure 17

**IMPORTANT: DO NOT bend or kink sensing tube when removing or installing thermostat.**

m. When installing, bundle wires and sensing tube, and wrap with electrical tape or wire ties so that they fit under wire cover.

**IMPORTANT: Do not allow wiring cover to pinch capillary tubes or wires when reinstalling.**


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**64. TEMPERATURE SENSOR (MICROPROCESSOR MODELS ONLY) First Generation Microprocessor Models (Prior to Serial No. XTEK0569005TC)**

**NOTE: Replace first generation Temperature Sensor with M4449P3 Temperature Sensor Kit.**

a. Support chain guard and remove screws holding guard to rear of tumbler. Remove guard. Refer to *Figure 17*.
b. Remove two wires from the sensor terminals. Refer to *Figure 19*.

**NOTE: Refer to wiring diagram when rewiring sensor.**

c. Remove two screws (and washers) holding sensor to recirculation duct. Remove sensor. Refer to *Figure 19*.
d. Reinstall chain guard on tumbler.

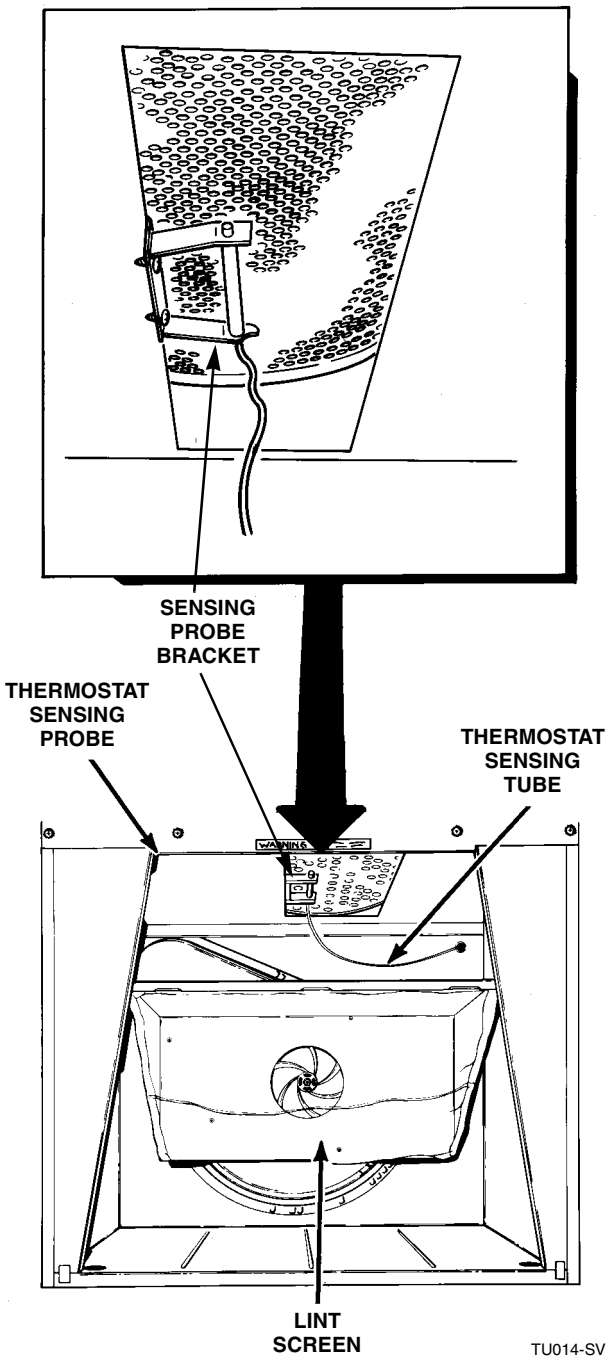


Figure 18


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**Second Generation Microprocessor Models (Starting with Serial No. XTEK0569005TC)**

**NOTE: Second generation microprocessor models have two different methods for mounting temperature sensors: snap-in or turn-in. Replace any of these previous versions with M4450P3 Sensor Kit.**

a. Support chain guard and remove screws holding guard to rear of tumbler. Remove guard. Refer to *Figure 17*.
b. Remove two wires from the sensor terminals. Refer to *Figure 19*.

**NOTE: Refer to wiring diagram when rewiring sensor.**

c. Remove sensor from recirculation duct. Refer to *Figure 19*.
d. Reinstall chain guard on tumbler.

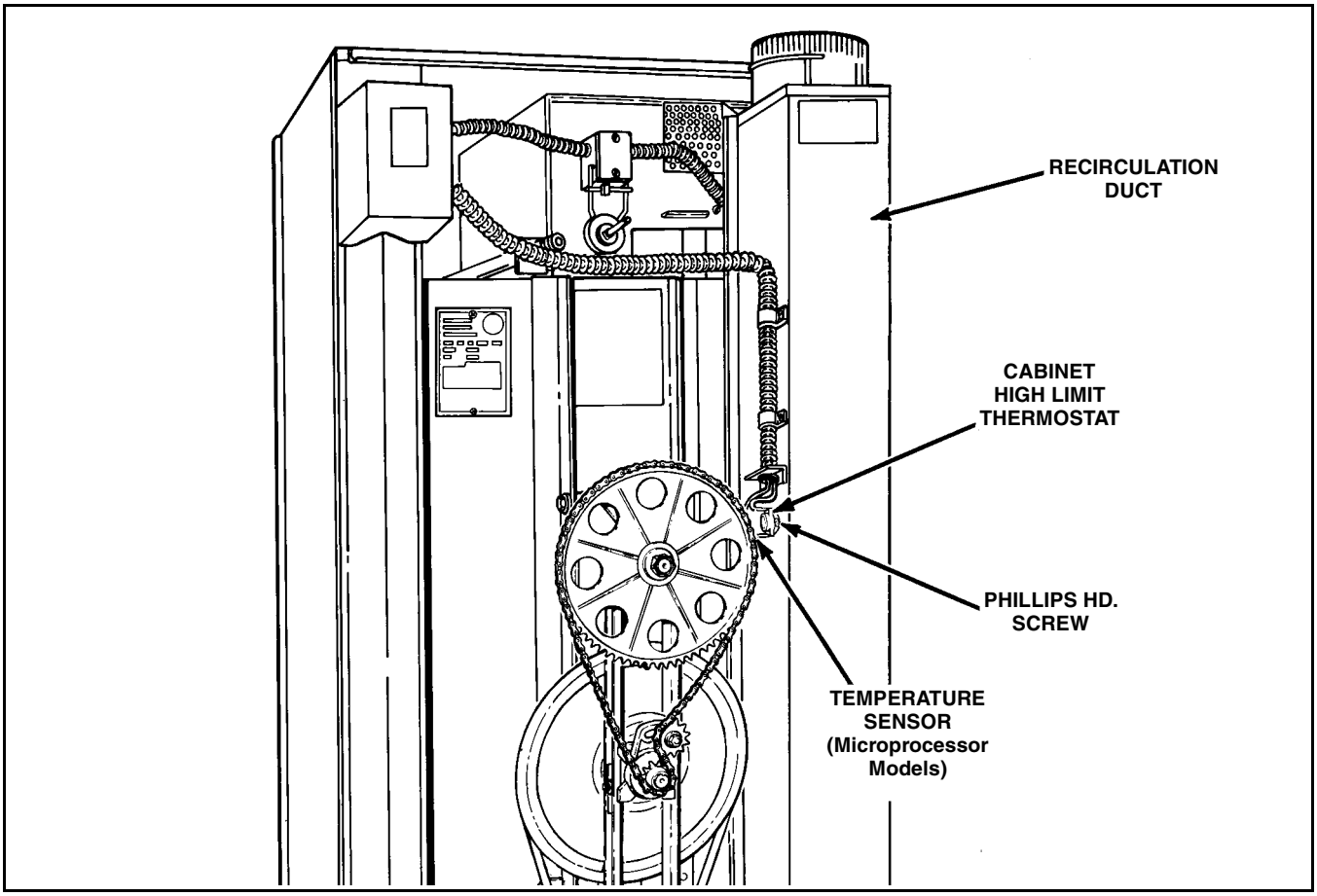


Figure 19


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 65. CABINET HIGH LIMIT THERMOSTAT

a. Support chain guard and remove screws holding guard to rear of tumbler. Remove guard. Refer to *Figure 17*.

b. Remove two wires from thermostat terminals. Refer to *Figure 19*.

**NOTE: Refer to wiring diagram when rewiring thermostat.**

c. Remove two screws holding thermostat to cabinet. Refer to *Figure 19*.

d. Reinstall chain guard on tumbler.

### 66. STOVE HIGH LIMIT THERMOSTAT

**Gas Models**

a. Disconnect electrical service.

b. Remove enough screws on left side of top cover pan to access thermostat bracket.

c. With a short (stubby) screwdriver, remove screws holding thermostat bracket and cover to cabinet. Refer to *Figure 20*.

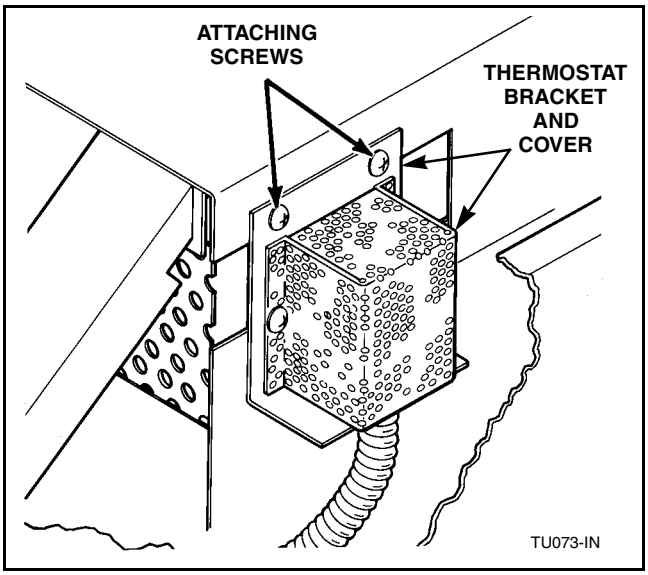


Figure 20

d. Carefully remove thermostat, bracket, and cover out through rear of tumbler as far as wire harness permits.

e. Remove two screws holding cover to mounting bracket. Refer to *Figure 21*.

f. Disconnect wires from thermostat. Refer to *Figure 21*.

**NOTE: Refer to wiring diagram when rewiring thermostat.**

g. Remove two screws holding thermostat to mounting bracket. Refer to *Figure 21*.

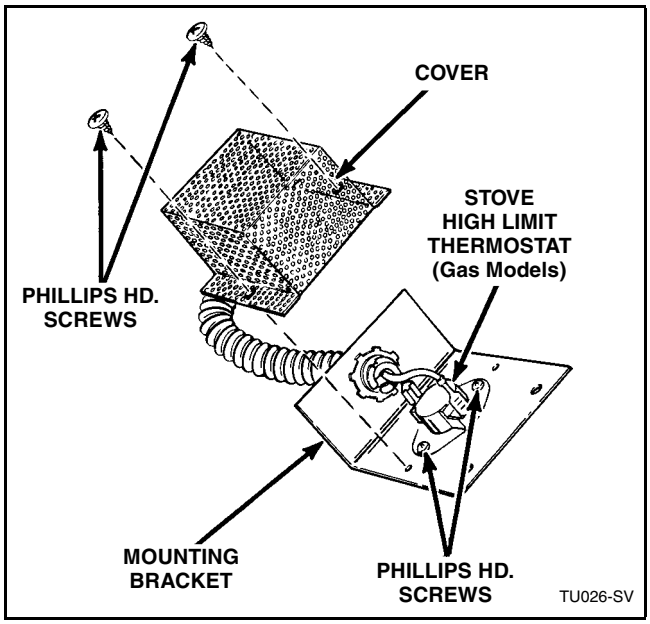


Figure 21


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**Electric Models (*Figure 22*)**

**NOTE: Control panel need not be removed in order to replace thermostat. Control panel removed for illustration in *Figure 22*.**

a. Unlock and open access panel.
b. Disconnect two wires from thermostat. Refer to *Figure 22*.

**NOTE: Refer to wiring diagram when rewiring thermostat.**

c. Remove two screws holding thermostat to heater housing.

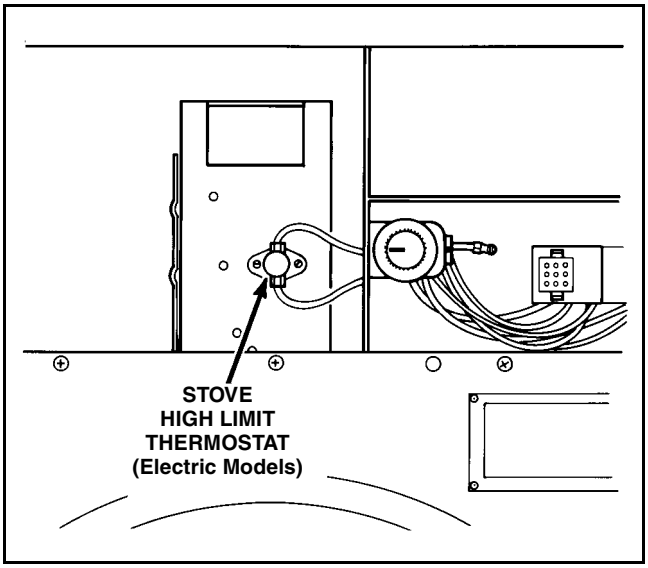


Figure 22

**67. LOADING DOOR ASSEMBLY**
(*Figure 23*)
a. Open loading door.
b. While supporting door, remove upper hinge bolt holding door to hinge bracket.

**NOTE: Nylon washer must be in place on lower pin when reinstalling loading door.**

c. Remove door from bracket.

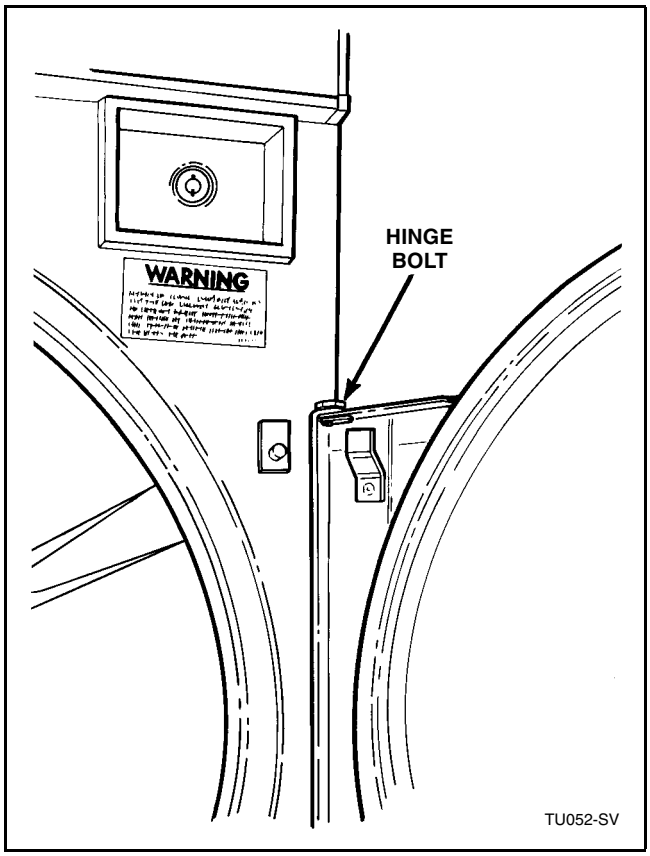


Figure 23


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 68. DOOR HINGE

a. Open loading door.
b. While supporting door, remove upper hinge bolt holding door to hinge bracket.

**NOTE: Nylon washer must be in place on lower pin when reinstalling loading door.**

c. Remove door from bracket.
d. Remove nuts and screws holding hinge to door frame. Refer to *Figure 24*.

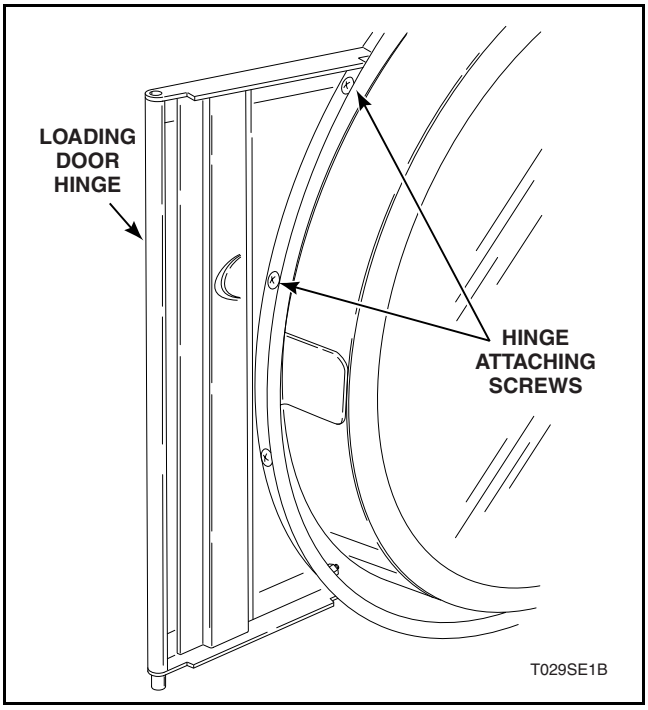


Figure 24

### 69. DOOR HANDLE

(Refer to *Figure 25*)
a. Open loading door.
b. Remove two screws holding door handle to door frame.

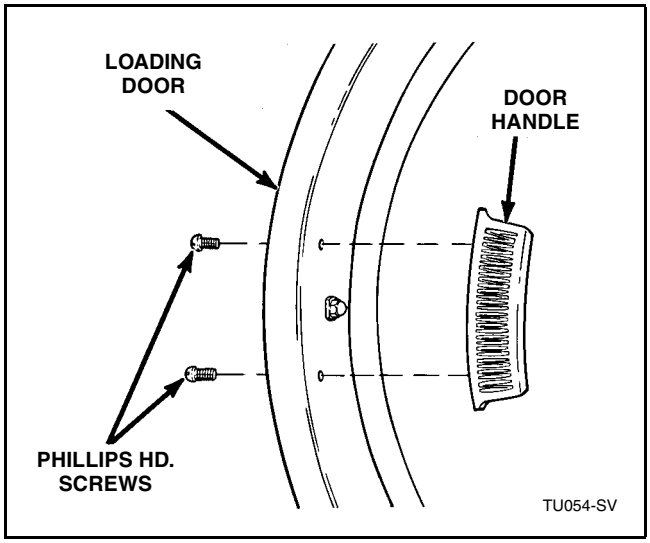


Figure 25


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**70. FRONT PANEL**

a. Remove control panel.
b. Unlock, open and remove lint panel. Set aside to prevent damage.
c. Open loading door, support door and remove upper hinge bolt holding door to hinge bracket. Refer to *Figure 23*.

**NOTE: Nylon washer must be in place on lower hinge pin when reinstalling door.**

d. Remove door from bracket.
e. Support front panel and remove screws and three clips holding front panel to tumbler cabinet. Refer to *Figure 26*.
f. While supporting front panel, tilt panel away from tumbler far enough to permit removing wires from door switch.

**NOTE: Refer to wiring diagram when rewiring door switch.**

g. Remove front panel.

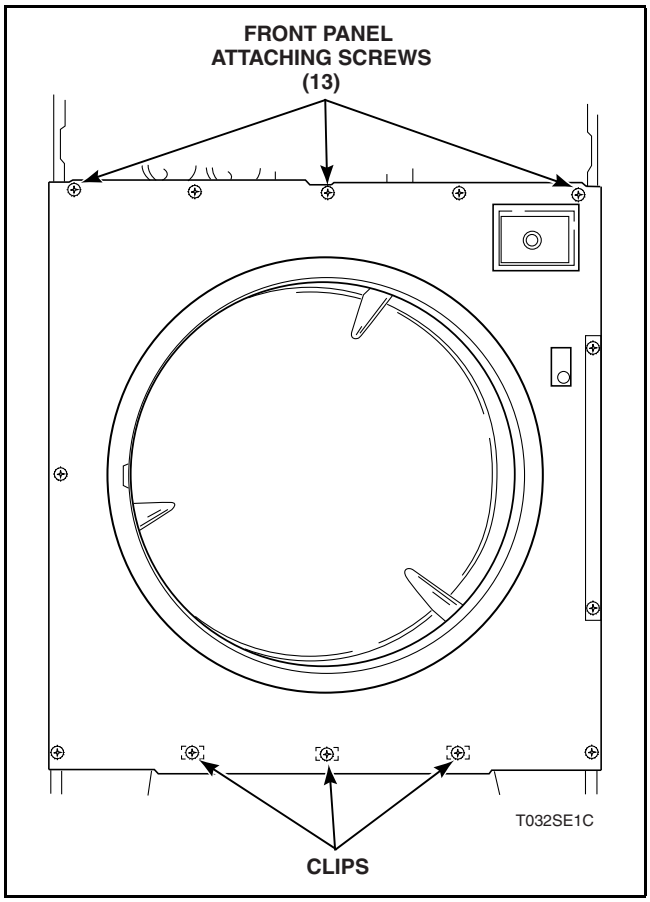


Figure 26


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 71. DOOR SWITCH

a. Remove front panel.
b. Depress tabs on top and bottom of switch and push switch out through front of panel. Refer to *Figure 27*.

**NOTE: Refer to wiring diagram when rewiring door switch.**

## WARNING

**Loading door switch MUST be reinstalled after service is completed.**

W272

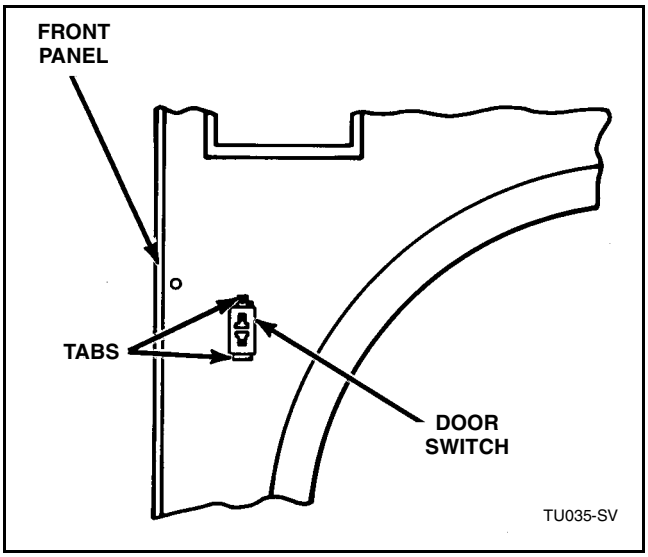


Figure 27

### 72. AIRFLOW SWITCH

(*Figure 28*)

**NOTE: Airflow switches are located differently on gas and electric models. On gas models, switch is located on rear of stove assembly; on electric models, switch is located beneath the wire cover (lower left rear panel).**

a. Remove airflow switch box cover.
b. Disconnect wires from switch.

**NOTE: Refer to wiring diagram when rewiring switch.**

(continued)

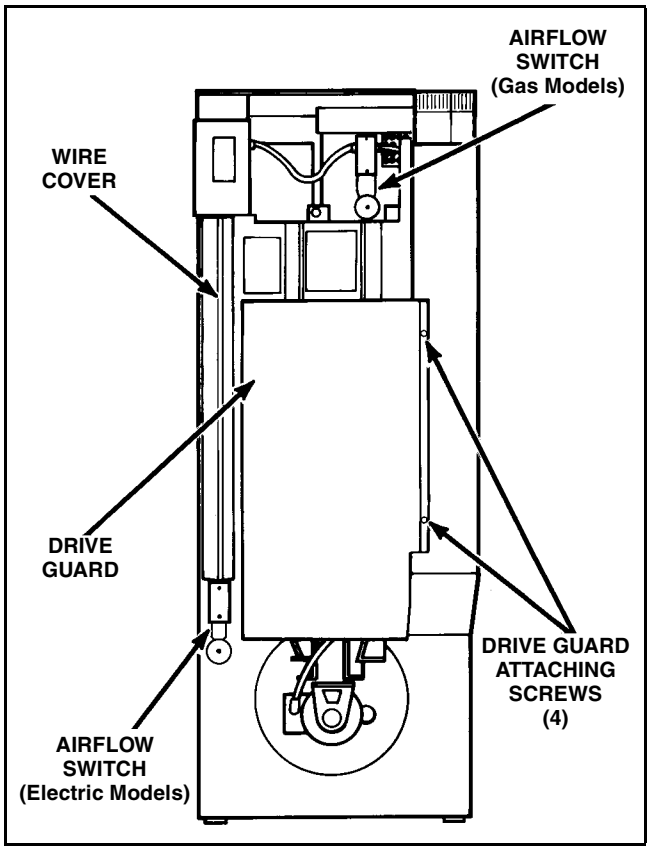


Figure 28


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

c. Remove screw(s) holding switch and mounting bracket to switch box. Refer to *Figure 29*.
d. Remove two screws holding switch to mounting bracket.

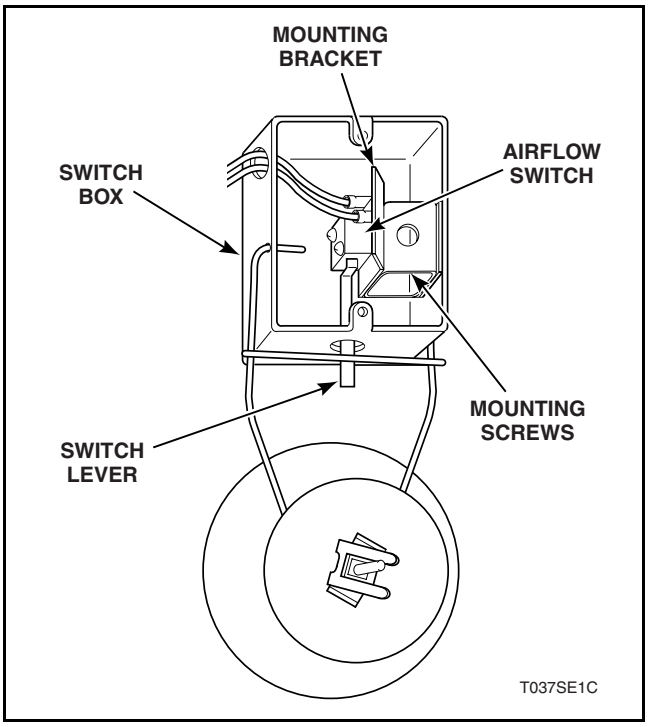


Figure 29

**NOTE: After reinstalling airflow switch and mounting bracket into switch box, adjust switch. Refer to *Paragraph 87*.**

**73. WIRE COVER**
(*Figure 28*)
a. Remove screws holding wire cover to rear of tumbler.
b. Remove cover from rear of tumbler.

**IMPORTANT: When reinstalling cover, make sure that wires and thermostat sensing tube (if equipped) are not pinched between rear of cabinet and wire cover.**

**74. DRIVE GUARD**
(*Figure 28*)
a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.
b. Reinstall drive guard.


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**75. DRIVE BELT**

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.

b. Remove four clips or two screws holding belt guard assembly to motor bracket. Refer to *Figure 30*. Remove belt guard.

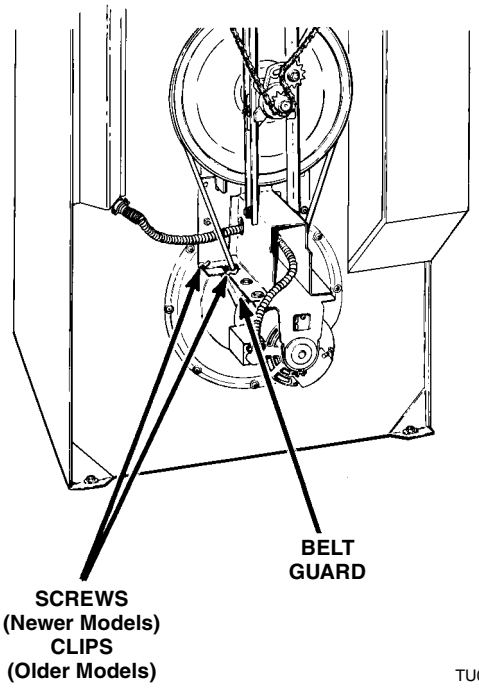


Figure 30

c. Run belt off sheave and motor pulley. Refer to *Figure 31* for Belt/Chain models and *Figure 32* for Belt/Belt models.

**NOTE: When reinstalling new belt on original drive pulleys, center four-groove belt on six-groove sheave and motor pulley.**

d. Loosen upper bolt and nut holding guide rails to trunnion housing. Refer to *Figures 31* and *32*.

e. Remove lower bolt and nut from guide rail. Hinge guide rail out and slip belt out from under guide rails.

**NOTE: After reinstalling belt on sheave and motor pulley, adjust belt, then adjust chain.**

f. Reinstall chain and belt guards.

**76. DRIVE CHAIN**

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.

b. Loosen jam nut on idler sprocket locking bolt and move sprocket to right to relieve chain tension. Refer to *Figure 31*.

c. Run chain off idler sprocket and lift chain off cylinder sprocket.

d. Reinstall chain and drive guard.


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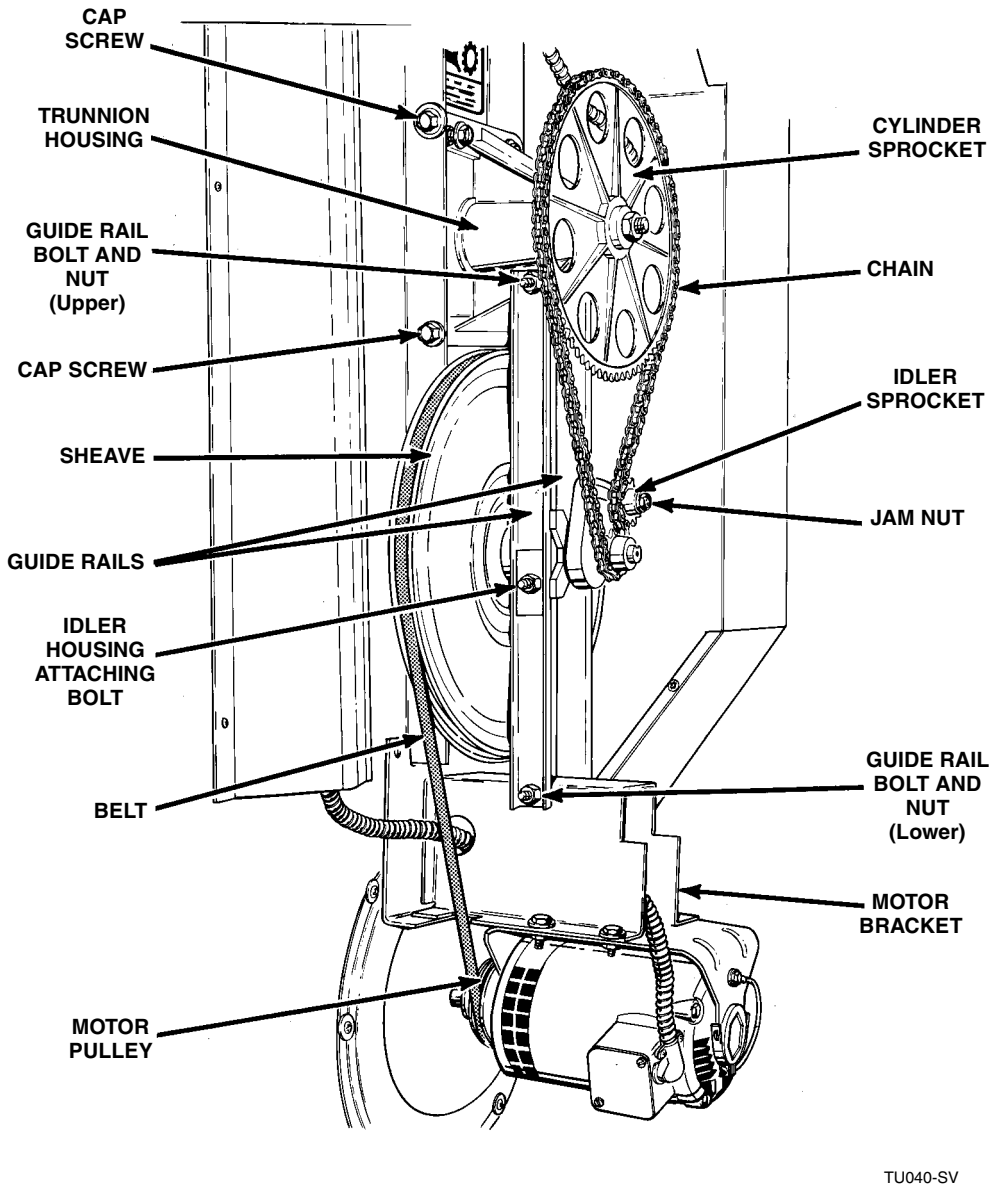


**BELT/CHAIN MODELS**

Figure 31


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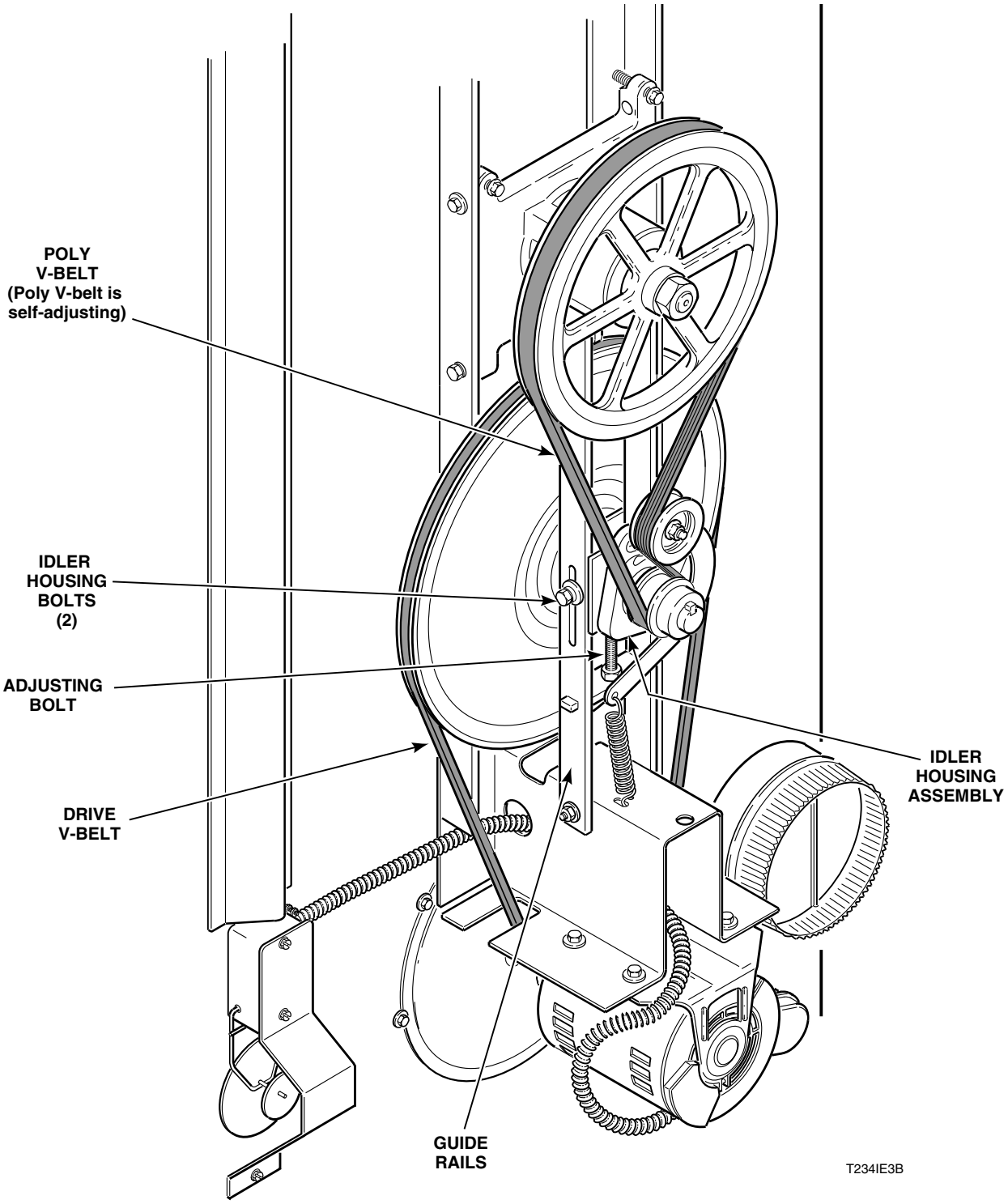


**BELT/BELT MODELS**

Figure 32


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**77. IDLER SPROCKET**

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.
b. Loosen jam nut on idler sprocket locking bolt and move sprocket to right to relieve chain tension. Refer to *Figure 31*.
c. Run chain off idler sprocket and lift chain off cylinder sprocket.
d. Remove jam nut and sprocket from bolt. Refer to *Figure 31*.

**NOTE: After installing chain and sprocket, adjust chain.**

e. Reinstall chain and drive guard.

**78. SHEAVE**

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.
b. Run belt off sheave and motor pulley. Refer to *Figure 31*.
c. Loosen jam nut on idler sprocket and move idler sprocket to the right. Refer to *Figure 31*.
d. Run chain off idler sprocket.
e. Supporting trunnion housing, remove the upper and lower bolts, nuts and lockwashers holding guide rails to trunnion housing and motor bracket. Refer to *Figure 31*.
f. Remove the sheave, guide rails, and idler housing as an assembly from the rear of the tumbler.

**"Spoked Sheave" Model**

g. Remove snap ring from idler shaft.
h. Loosen two setscrews holding sheave to idler shaft and pull sheave off idler shaft.
i. Remove key from shaft keyway.
j. Replace with M4413P3 Sheave Kit.

**IMPORTANT: Reassemble sheave to idler shaft and run sheave out until it butts against snap ring. Make sure that the shaft key is correctly positioned under setscrew; tighten setscrew above key first then tighten other setscrew. Realign motor pulley directly under sheave by loosening motor pulley setscrews and adjusting motor pulley position.**

**"Solid Sheave" Model (*Figure 33*)**

h. Remove pal nut from idler shaft.
i. Remove jam nut and locking washer from shaft.
j. Loosen setscrew holding sheave to shaft and pull sheave off shaft.
k. Reinstall sheave, belt and drive guard.

**IMPORTANT: Key must be properly positioned on idler shaft when installing sheave.**

**NOTE: After installing sheave, adjust belt, then adjust chain.**


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## WARNING

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- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

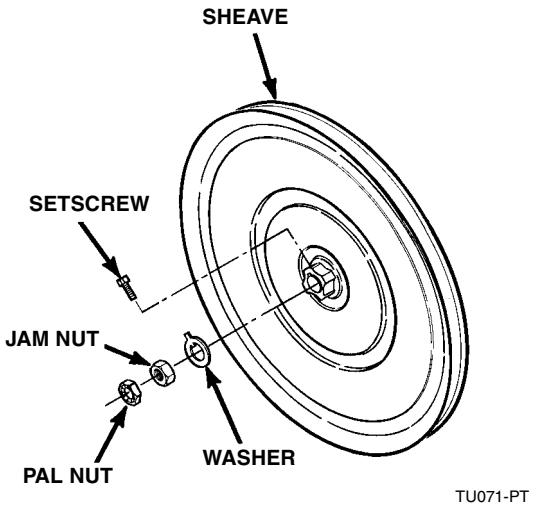


Figure 33

**79. IDLER HOUSING ASSEMBLY**

(Refer to *Figure 31*)

a. Remove sheave.
b. Remove bolt holding idler housing to guide rails.
c. Support idler housing and carefully drive idler shaft from housing using a hammer and hardwood dowel.
d. Support idler housing and drive bearings from housing using a hammer and hardwood dowel.
e. Reinstall shaft and bearings.

**IMPORTANT: When installing new bearings, apply a film of oil to the bearing cavity surfaces in the housing and to the outside diameter of the bearings.**

f. Reinstall drive guard.

**80. CYLINDER SPROCKET**

(Refer to *Figure 31*)

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.
b. Loosen jam nut on idler sprocket and move sprocket to right to relieve chain tension.
c. Run chain off idler sprocket and drive sprocket.
d. Lift chain off cylinder sprocket.

**NOTE: After installing chain on drive and idler sprockets, adjust chain.**

e. Remove pal nut, jam nut, and sprocket from cylinder shaft.
f. Reinstall drive guard.

**81. CYLINDER ASSEMBLY**

a. Remove control panel.
b. Open loading door.
c. While supporting door, remove upper hinge bolt holding door to hinge bracket.

**NOTE: Nylon washer must be in place on lower pin when reinstalling loading door.**

d. Remove door from bracket.
e. Remove front panel assembly.
f. Loosen jam nut on idler sprocket locking bolt and move sprocket to right to relieve chain tension. Refer to *Figure 31*.
g. Run chain off idler sprocket and lift chain off cylinder sprocket.
h. Remove key and cylinder sprocket.
i. Pull cylinder out through front of tumbler.

**NOTE: When removing cylinder out through front of cabinet, spread cabinet slightly so cylinder will clear cabinet sides.**

**NOTE: After reinstalling chain on cylinder, drive and idler sprockets, adjust chain.**

**NOTE: After installing cylinder and shaft, adjust cylinder.**

j. Reinstall drive guard on tumbler.


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## WARNING

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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**82. TRUNNION HOUSING ASSEMBLY**

a. Remove cylinder assembly.

b. Remove upper guide rail bolt and nut. Refer to *Figure 31*.

c. Remove four cap screws holding trunnion housing assembly to rear of cabinet. Refer to *Figure 31*.

d. Remove four bearing retainer screws holding the small bearing in housing. Refer to *Figure 31*.

e. Use a hammer and wood dowel to remove bearings.

**IMPORTANT: When installing new bearings, apply a film of oil to the bearing cavity surfaces in the housing and to the outside diameter of the bearings.**

f. Reinstall drive guard on tumbler.

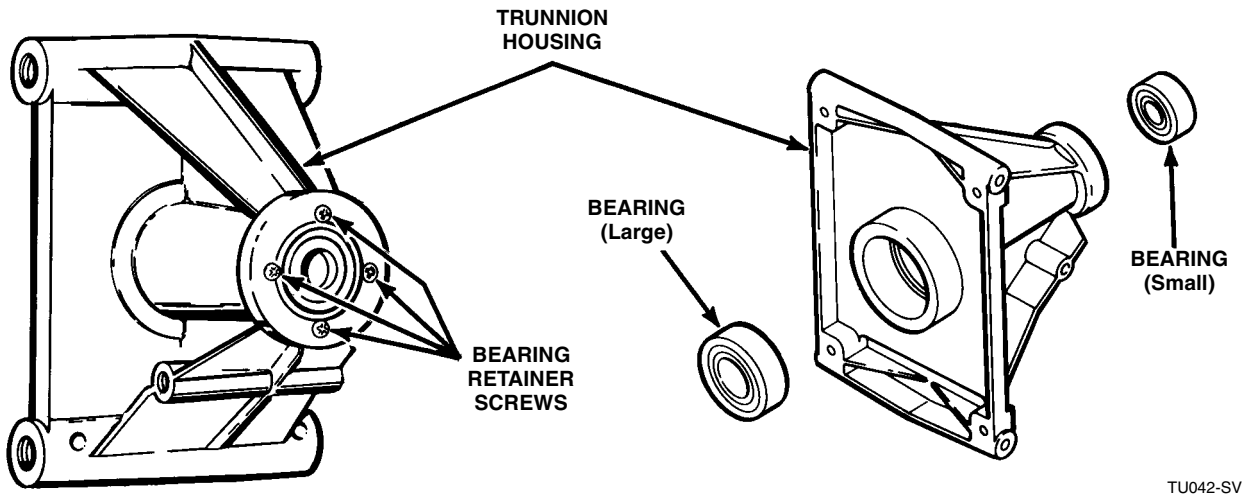


Figure 34


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**83. TRUNNION SHAFT ASSEMBLY**

a. Remove cylinder assembly.

b. Remove the four washers and nuts holding trunnion shaft assembly to rear of cylinder.

**IMPORTANT: When installing trunnion shaft assembly on cylinder, cylinder and shaft must be leveled. Refer to *Figure 35* for an example of how to check for proper alignment of the shaft and cylinder. Measure the distance between the center of the trunnion shaft and the outer rim of the cylinder at the four points shown. If any measurement is lower than the highest point, place shim or shims (M401402) between trunnion channel and cylinder back until the measurement is equal to the highest point.**

**NOTE: After installing cylinder and shaft, adjust cylinder.**

c. Reinstall drive guard on tumbler.

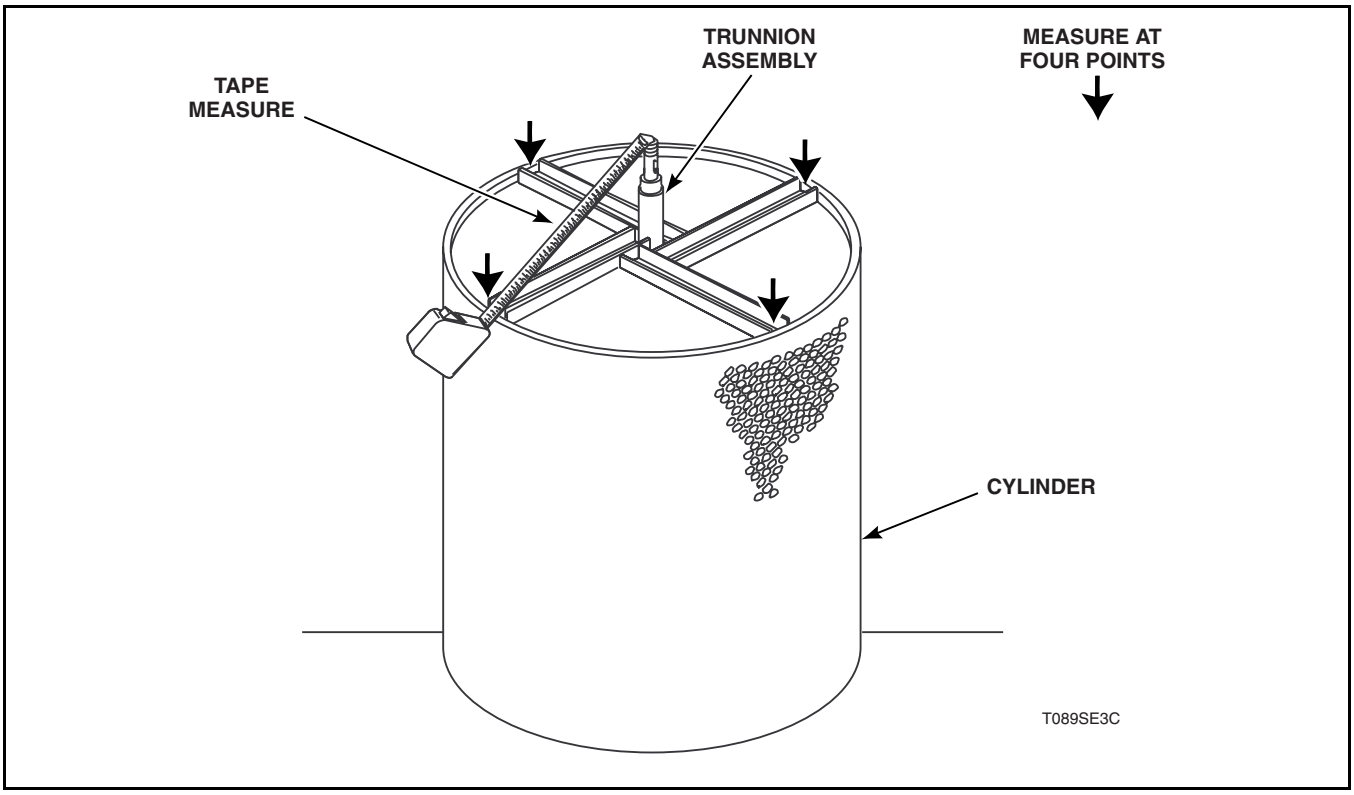


Figure 35


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 84. MOTOR AND FAN ASSEMBLY

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 28*.
b. Loosen nut on upper guide rail bolt. Refer to *Figure 31*.
c. Remove four clips or two screws holding belt guard to motor bracket and remove belt guard. Refer to *Figure 30*.
d. Remove the nut and washer from the lower guide rail bolt. Refer to *Figure 31*.

**NOTE: After removing belt, replace the lower guide rail bolt.**

e. Run drive belt off motor pulley.
f. Remove the seven fan housing attaching screws. Refer to *Figure 36*.
g. Remove the two cap screws and two sets of nuts and washers holding motor bracket to rear of tumbler cabinet. Refer to *Figure 36*.
h. Remove cover from motor junction box and disconnect wires from motor. Refer to *Figure 36*.

**NOTE: When installing motor, refer to wiring diagram when rewiring motor.**

i. Using the guide rails as support, swing motor and fan assembly out and away from rear of tumbler. Refer to *Figure 37*.
j. While supporting motor and fan assembly, remove the lower guide rail bolt. Refer to *Figure 37*.
k. Remove the four sets of nuts, washers and bolts holding mounting bracket to motor. Refer to *Figure 37*.

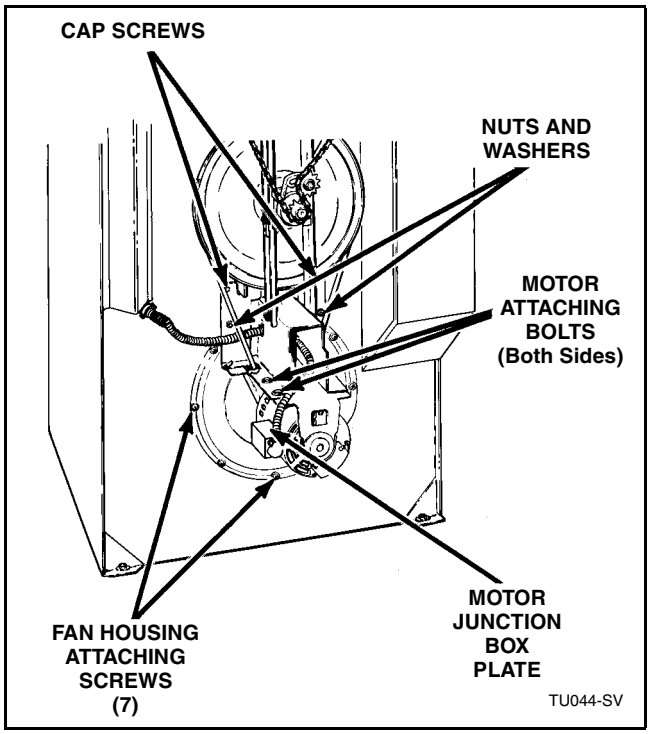


Figure 36

l. Remove locknut and jam nut holding fan on motor shaft. Refer to *Figure 38*. Pull fan off motor shaft.

**NOTE: Fan is keyed to motor shaft and may require removal from shaft by means of a puller.**

m. Remove spacer washer from motor shaft. Refer to *Figure 38*.
n. Loosen two setscrews holding motor pulley to motor shaft. Refer to *Figure 38*. Remove motor pulley.

**NOTE: A puller may be required to remove pulley from motor shaft.**


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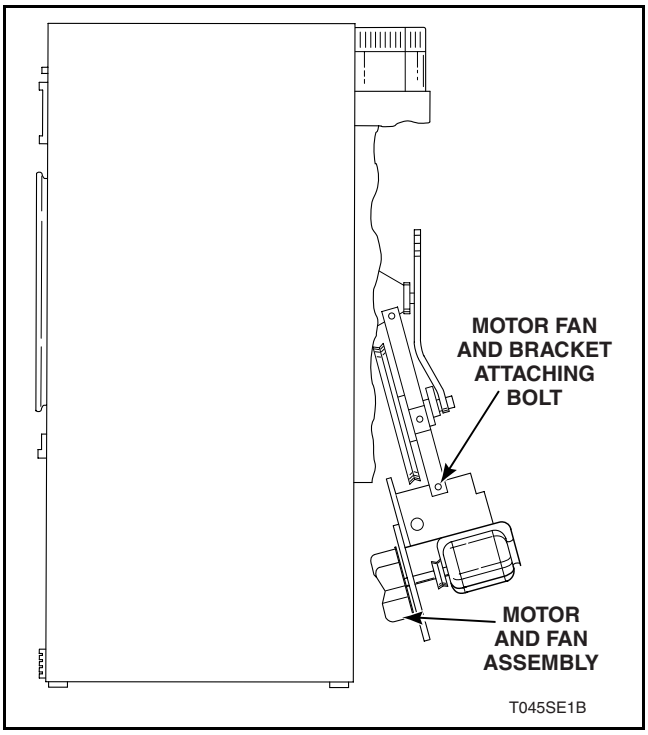


Figure 37

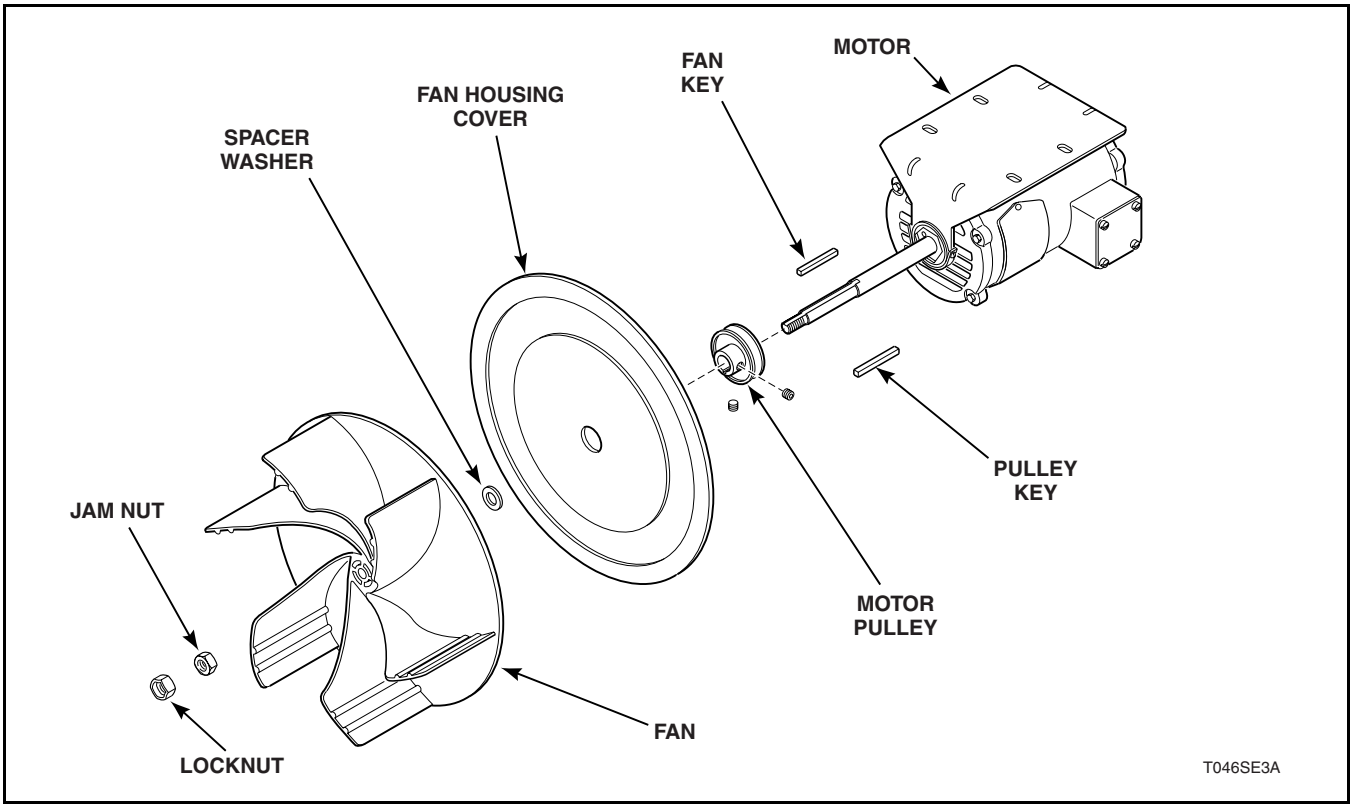


Figure 38


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# Section 6
# Adjustments

## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 85. LEVELING LEGS

**NOTE: It is recommended that the front of the tumbler be kept slightly higher than the rear (approximately 1/8 inch, 3.0 mm). This will prevent the clothes, while tumbling, from wearing on the door glass gasket.**

a. Check the front to rear level by rotating the clothes cylinder until one of the cylinder ribs is at the bottom. Place a level on the rib.
b. Check the side to side level by placing a level on the front and rear of top panel.
c. Front leg adjustment fittings are accessed by removing lint panel door. Rear adjustment fittings are located on rear corner braces. Adjust legs as needed.
d. Recheck front to back leveling and side-to-side levelness.

**NOTE: Keep the tumbler as close to the floor as possible. All four legs must rest firmly on the floor so weight of tumbler is evenly distributed. Tumbler must not rock.**

e. Replace lint panel.


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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 86. MAIN GAS BURNER AIR SHUTTER (All Gas Models)

## CAUTION

**The air inlet shutters on the burner must be adjusted so sufficient primary air is metered into the system for proper combustion and maximum efficiency. Before adjusting the inlet shutter be sure that all lint is removed from lint compartment and lint screen.**

W281

Air shutter adjustments will vary from location to location and will depend on the vent system, number of units installed, make-up air and line gas pressure. Opening the shutter increases the amount of primary air supplied to the burner while closing the shutter decreases the air supply. Adjust air shutter as follows:

a. Unlock and open the access door.

b. Start the tumbler and check the flame pattern. Correct air and gas mixture is indicated if the flame pattern is primarily blue, with small yellow tips, and bends to the right of the heater section. Refer to *Figure 39*. Too little air is indicated if the flame is yellow, lazy and smoky.

c. To adjust the air shutter, loosen air inlet shutter adjusting screw. Refer to *Figure 39*. Control panel may have to be removed temporarily to loosen air shutter screw to turn shutter.

d. Turn air shutter to the right or left as necessary to obtain flame intensity.

e. After shutter is adjusted for proper flame, tighten air shutter adjusting screw securely.

f. If the shutter is correctly adjusted, but the flame pattern is straight up, refer to *Figure 39*, insufficient air is flowing through the tumbler and airflow switch is improperly set. A flame pattern that flares to the right and left, refer to *Figure 39*, indicates that no air is flowing through the tumbler.

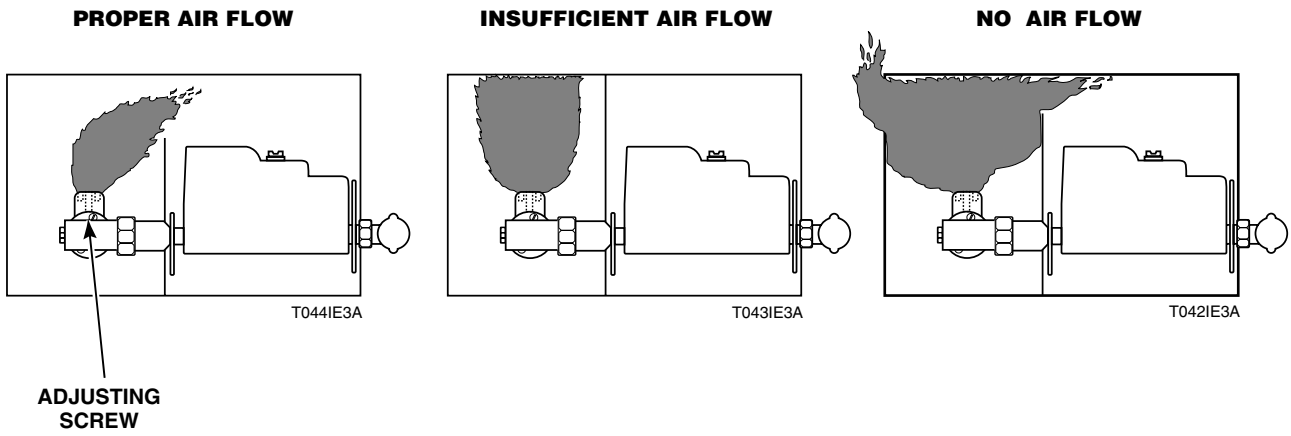


Figure 39


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 87. AIRFLOW SWITCH (Refer to *Figure 41*)

The airflow switch is set at the factory for proper operation. However, at installation, and following repairs, airflow must be checked. If there is a problem with the switch, adjust as follows:

## WARNING

**Control panel, access panel, and lint panel must be in place before attempting to adjust airflow switch.**

W276

**IMPORTANT: Airflow switch disc must remain closed during operation. If it opens during the drying cycle, this indicates insufficient airflow through the tumbler. If switch remains open, or pops open and closed during the cycle, the heating system will shut off. The cylinder and fan will continue to operate even though the airflow switch is malfunctioning.**

## WARNING

**Airflow switch operation may be affected by a clogged lint screen, lack of make-up air, or by obstructions in the vertical recirculation stack, or in the customer installed main or collector ducts. These conditions MUST be checked and necessary corrections made before adjusting airflow switch. Always check airflow at installation. Under no circumstances is the airflow switch to be blocked closed or bypassed.**

W277

The airflow switch operation is controlled by the counterweight position on the shaft. Moving the counterweight either increases or decreases airflow switch sensitivity. The counterweight should be adjusted so the airflow will force the disc away from the cabinet when the lint panel is opened 1-1/2 inches (38 mm). Adjust the airflow switch as follows:

a. Load the tumbler with a cotton load.

**NOTE: Airflow adjustment is much faster with one person opening lint panel in front and another adjusting the counterweight in the rear of tumbler.**

b. Start the tumbler. Open the lint panel 1-1/2 inches (38 mm). The airflow disc should move away from the cabinet, opening the switch contacts and shutting off the heat system. This indicates proper operation and proper adjustment.

c. If switch is not opening as described in step “b”, it should be adjusted so it is MORE sensitive. Depress the spring clip and move counterweight toward disc. Retest by opening lint panel and continue moving counterweight toward disc until switch operates as described in step “b”.

d. If switch opens BEFORE lint panel is opened the proper distance, in step “b”, it should be adjusted so it is LESS sensitive. Depress the spring clip and move counterweight away from the disc. Retest by opening lint panel and continue moving counterweight away from disc until switch operates as described in step “b”.


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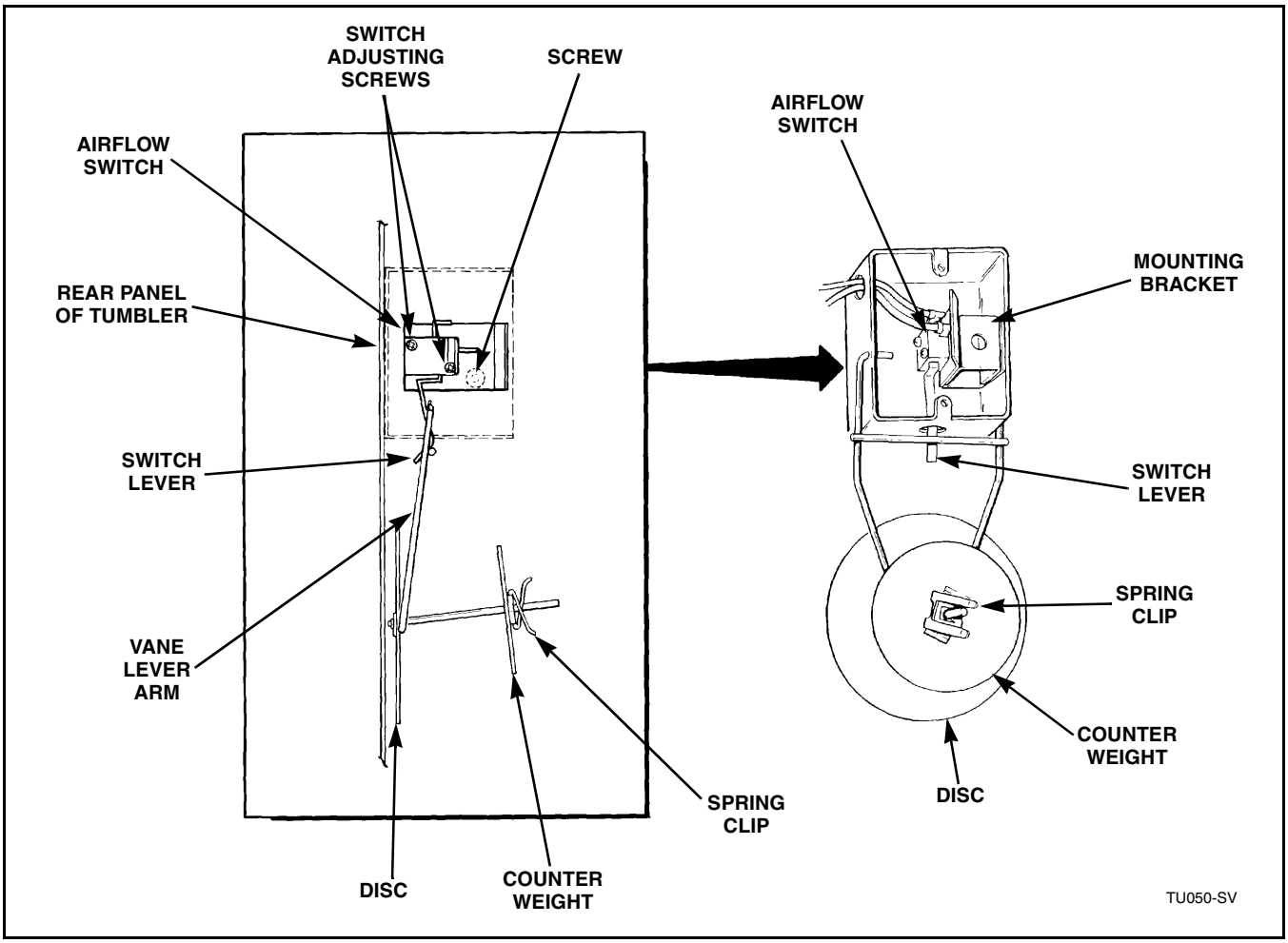


Figure 40


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 88. CYLINDER DOOR SWITCH

**(Refer to *Figure 41*)**

The door switch should be adjusted so the cylinder stops when door is opened two inches (51 mm), plus or minus 1/4 inch (6 mm). This switch is a normally open switch and is closed when the door is closed.

a. Close door and start tumbler, slowly open loading door. Cylinder and heat system should shut off when door is open two inches (51 mm) plus or minus 1/4 inch (6 mm).

b. Slowly close loading door. When door is two inches (51 mm) from being fully closed, the tab on the door should contact the switch plunger and depress it enough to close the switch with an audible “click”.

c. If tab does not depress the switch plunger enough to operate the switch, bend tab on loading door OUTWARD and repeat steps “a” and “b”.

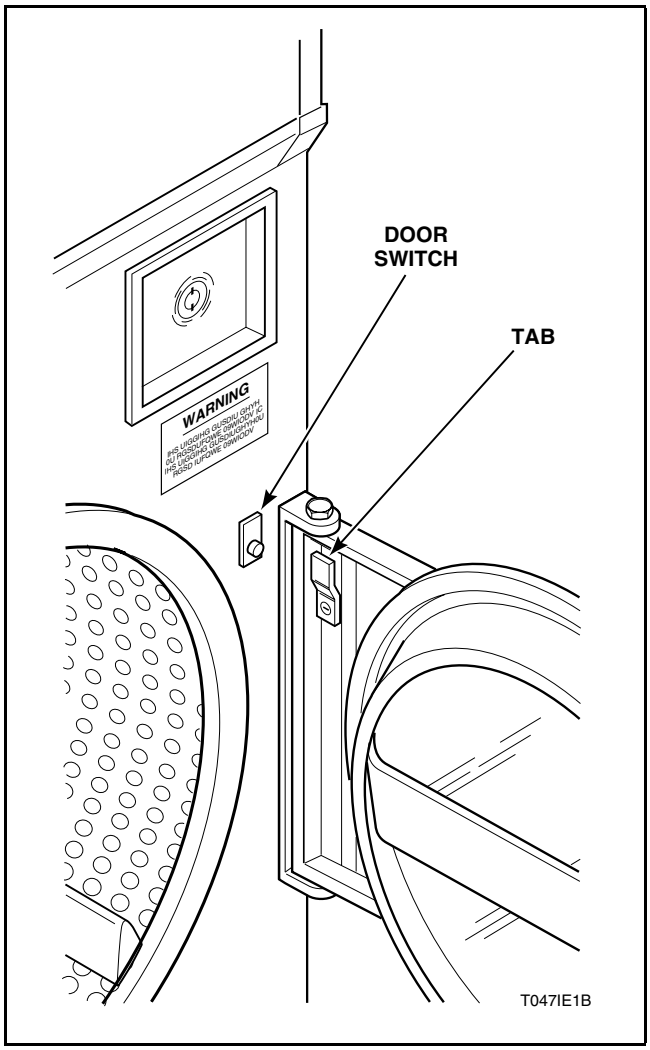


Figure 41


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 89. CYLINDER DOOR STRIKE

**(Refer to *Figure 42*)**

The door strike must be adjusted so that sufficient tension holds loading door closed against the force of a load tumbling against it. The door is properly adjusted when 8-15 lbs. (17.6-33 kg) of pull is required to open door.

To adjust, open door, loosen acorn nut and turn door strike screw in or out as required. Retighten acorn nut.

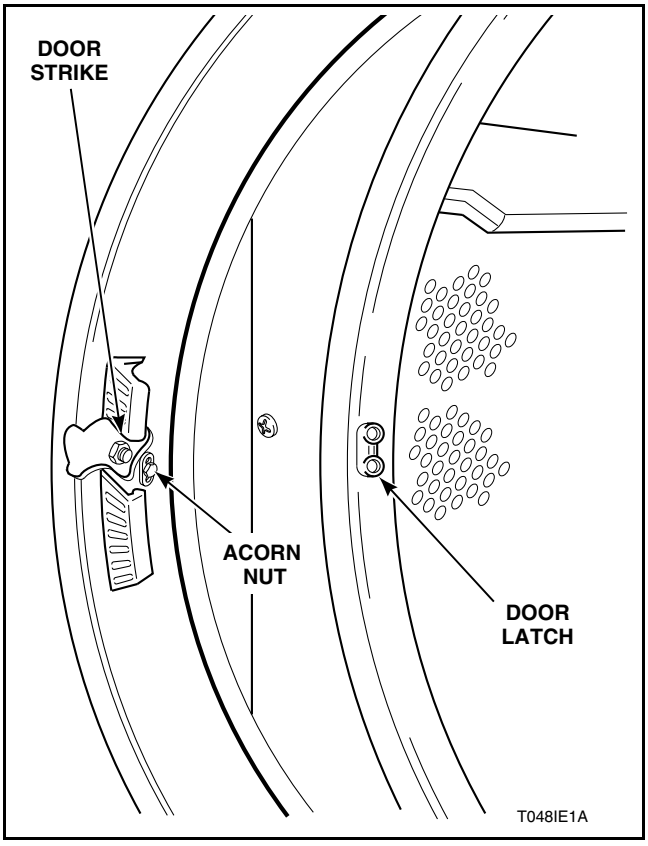


Figure 42

### 90. DRIVE V-BELT TENSION

**Belt/Chain Models**

**(Refer to *Figure 43*)**

To find the proper tension, apply light thumb pressure midway between sheave and motor pulley and adjust until the belt can be depressed approximately 1/2 inch (13 mm).

## CAUTION

**Adjusting the drive belt tension WILL AFFECT drive chain tension. You MUST check and readjust the chain tension after adjusting belt tension.**

W282

a. Remove drive guard from rear of tumbler.
b. To adjust belt tension, loosen belt-adjusting bolt holding idler housing assembly to the guide rails.
c. Lift idler housing assembly upward until proper belt tension is reached, then raise and retighten belt-adjusting bolt.

**Belt/Belt Models**

**(Refer to *Figure 44* )**

To find the proper tension, apply light thumb pressure midway between sheave and motor pulley and adjust until the belt can be depressed approximately 1/2 inch (13 mm).

a. Remove guard from rear of tumbler.
b. To adjust belt tension, loosen idler housing bolts holding idler housing assembly to guide rails.
c. Position housing assembly by turning adjusting bolt until proper belt tension is reached, then retighten idler housing bolts.
d. Replace guard on rear of tumbler.


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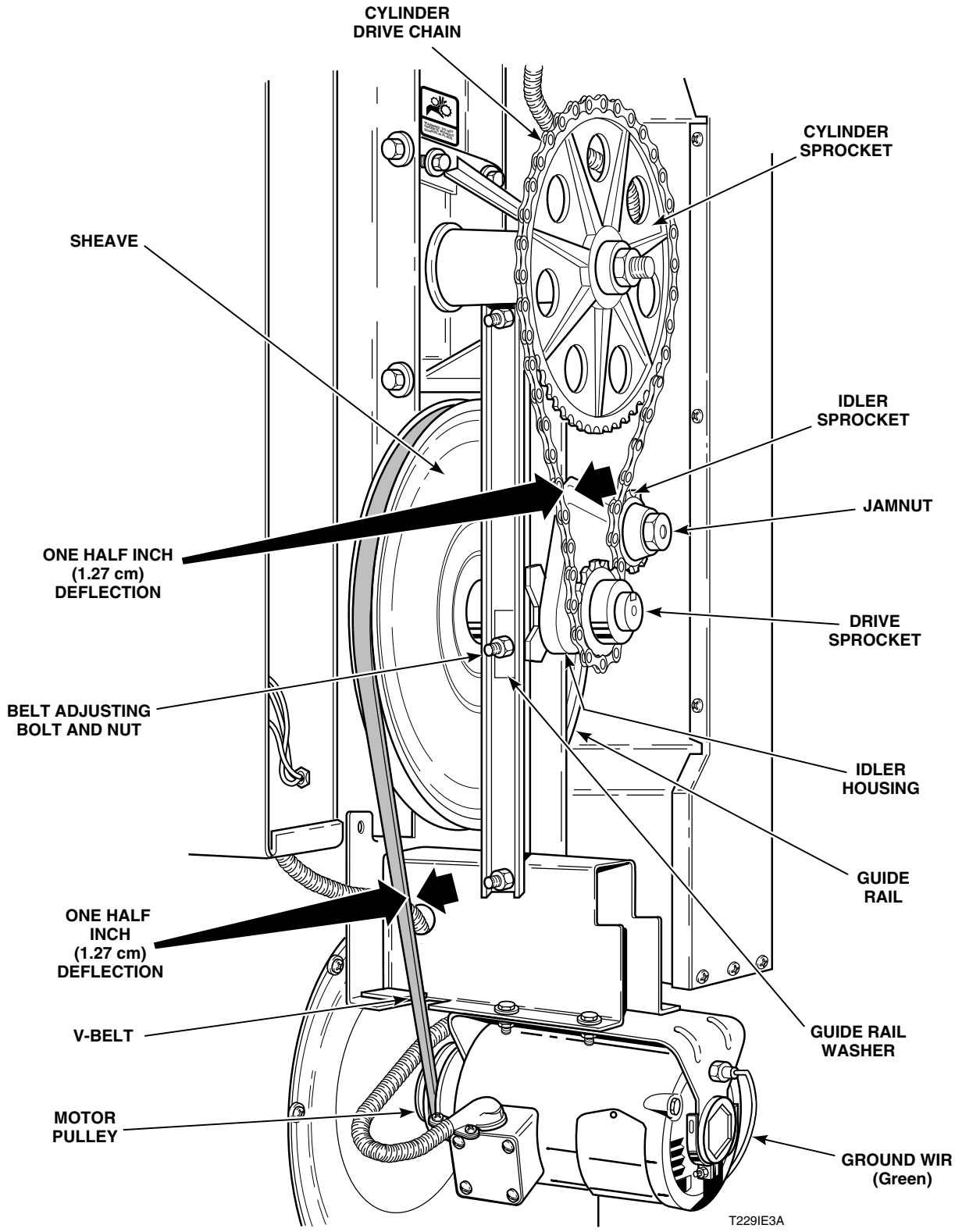
**BELT/CHAIN MODELS**




**NOTE: Tumbler is shown with guards removed for illustration purposes only. Never operate the tumbler with the guards removed.**

Figure 43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**BELT/BELT MODELS**

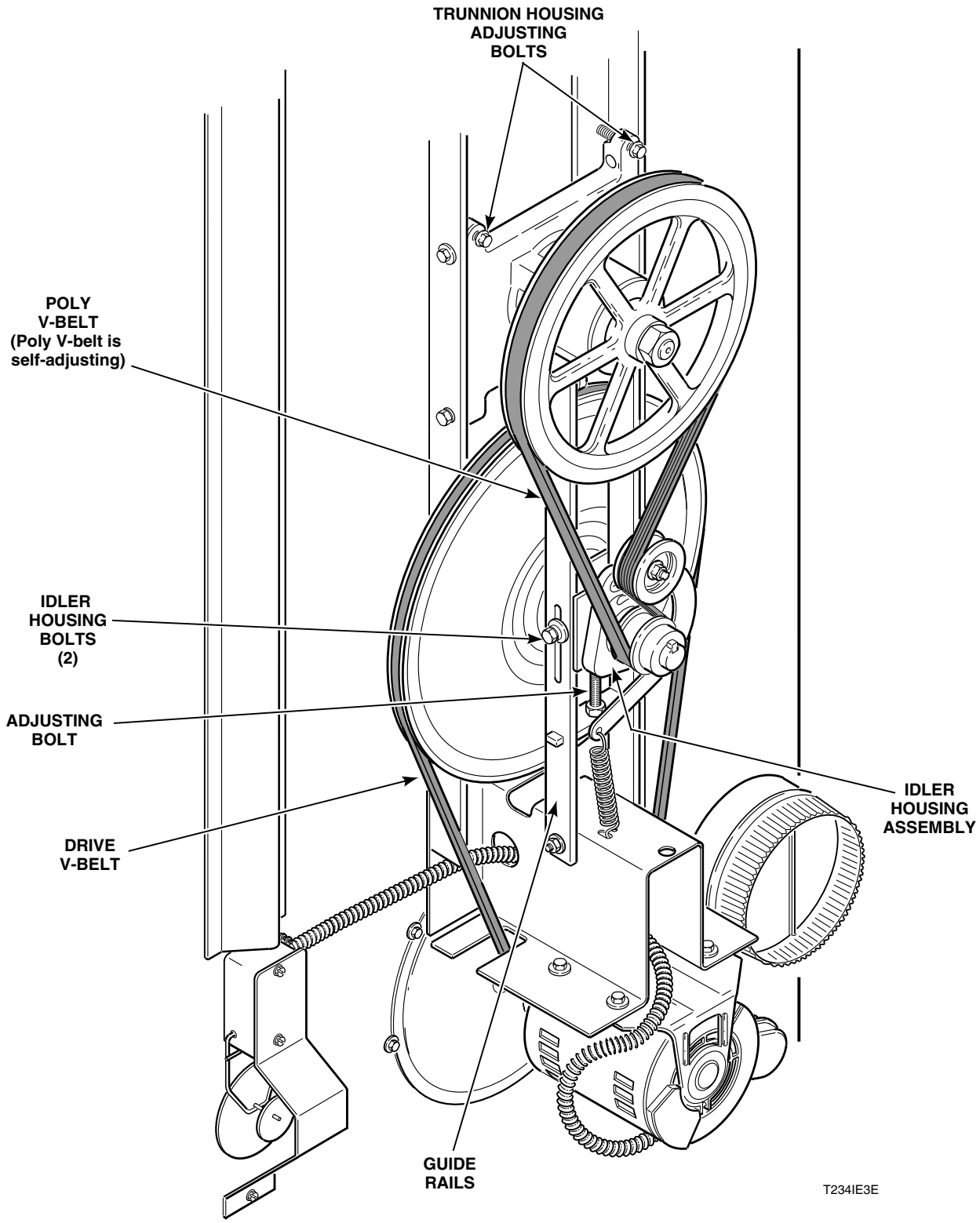


Figure 44


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**91. DRIVE CHAIN TENSION**
**(Refer to *Figure 43*)**
To find the proper tension, apply light thumb pressure midway between the cylinder sprocket and the idler sprocket, and adjust until the chain can be depressed approximately 1/2 inch (13 mm).

**IMPORTANT: After a tumbler has been in operation over an extended period of time, a "HIGH POINT" will develop on the cylinder drive sprocket from use and wear. Turn the sprocket manually with drive chain in place until this "high point" is at the top center. The "high point" can be found by noticing increased chain tension while slowly rotating the cylinder sprocket manually.**

a. Remove guard from rear of tumbler.
b. Adjust belt first.
c. To adjust chain tension, loosen jamnut holding idler sprocket to housing.
d. Move idler sprocket left or right until proper chain tension is reached, then retighten the jamnut.
e. Check chain tension.

## DANGER

**NEVER OPERATE THE TUMBLER WITH THE GUARDS REMOVED.**

W280

**92. CYLINDER CLEARANCE**
The clearance between the cylinder rim and front panel must be adjusted so the cylinder is centered within the front panel opening when the cylinder is fully loaded and is turning. However, the adjustment should be made when the cylinder is empty.

**NOTE: If the cylinder is not properly adjusted, the cylinder rim will rub against the front panel.**

a. Open loading door and check the gap between the center of the front panel top flange and the cylinder rim. Proper adjustment is when the gap is 7/16 inch (11 mm). Refer to *Figure 45*.
b. Remove chain guard.

## WARNING

**For personal safety, chain guard MUST be reinstalled after servicing has been completed.**

W273

c. Loosen the four trunnion housing bolts. Refer to *Figure 46*.
d. Loosen the locknuts on the trunnion housing adjusting bolts. Refer to *Figure 46*.
e. Turn the adjusting bolts in or out as necessary to obtain proper clearance between cylinder rim and front panel.

**NOTE: Turning the adjusting bolts clockwise will raise the cylinder and turning them counter-clockwise will lower the cylinder. Turn both bolts evenly to adjust top and bottom clearance. Turn one or the other adjusting bolt in or out to adjust side clearance.**

f. After the cylinder is properly adjusted, tighten the adjusting bolt locknuts and the four trunnion housing bolts.
g. Install the chain guard removed in step "b".


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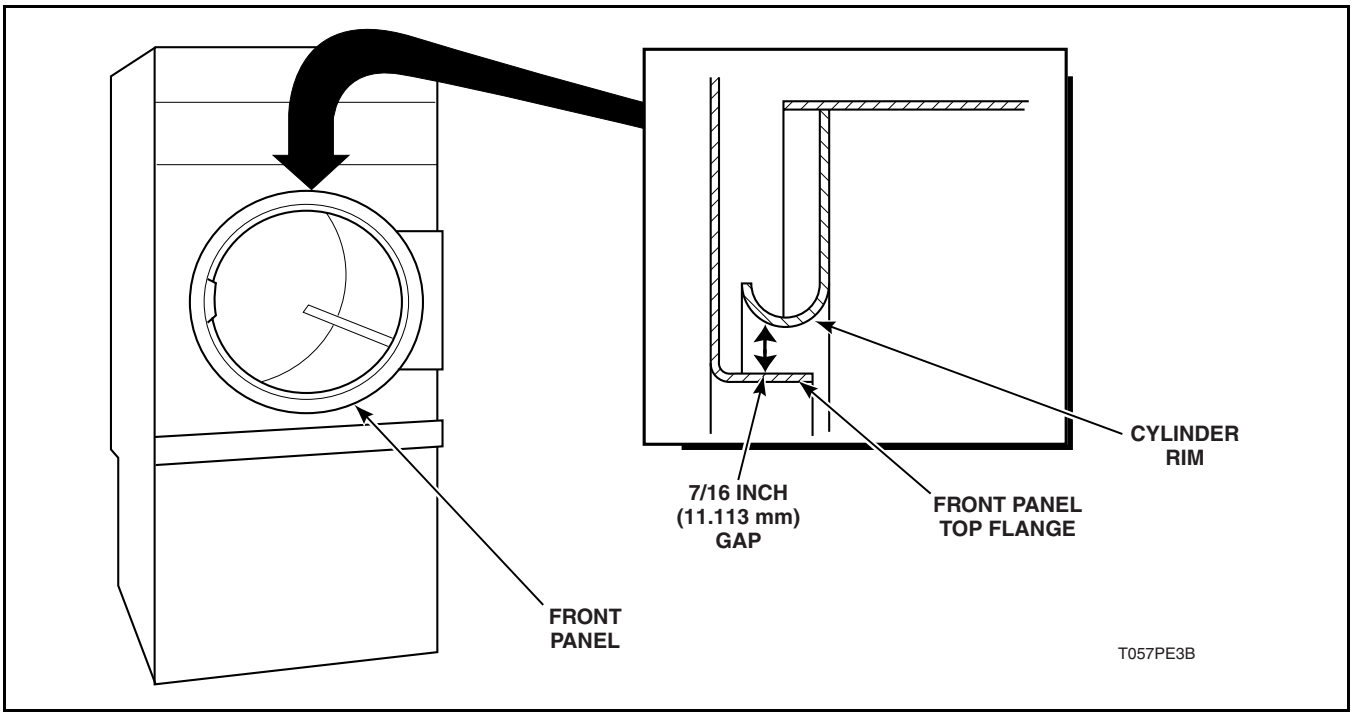


Figure 45

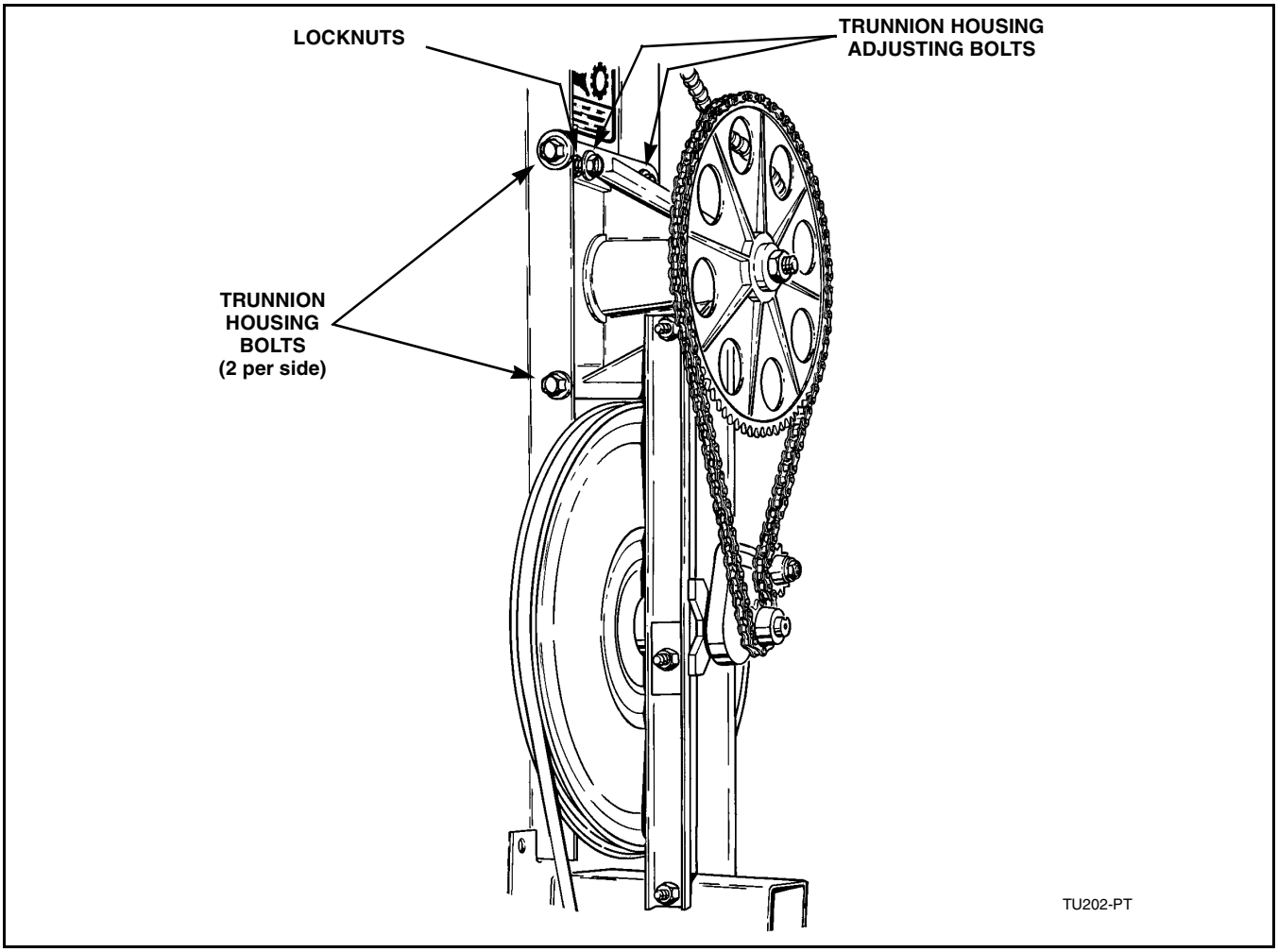


Figure 46


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# Section 7
# Microprocessor Diagnostic Instructions

**WARNING**

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

**NOTE: Electrical power to the tumbler must be on. For any diagnosis to occur, all of the left program switches MUST BE in the DOWN position. The tumbler must not be running and the display must be clear.**

If you with to check the program of the microprocessor, use the Diagnostic Cycle and/or the Diagnostic Mode. The diagnostic Cycle is an accelerated test cycle. The Diagnostic Mode checks the push buttons, beeper and the program code on the display.

### 93. DIAGNOSTIC CYCLE

**NOTE: Use the plastic programming stylus (supplied with tumbler) or equivalent when sliding the program switch lever up or down.**

a. Unlock and open access door. Refer to *Figure 1*.
b. Slide right program switch lever number 1 up, refer to *Figure 47*, leave all the other right program switches down. The START and PERM PRESS lights will be lit and PC01, PC02, or PC03 will appear on the display.
c. Press the START button (this will put the tumbler into an accelerated test cycle). START light will go out, motor relay closes. DRYING and PERM PRESS lights will be lit and the display will show the room or tumbler cabinet temperature.
d. Heater relay closes causing the burner to come on, display will show rising temperature. Burner will operate for two minutes, or until the programmed PERM PRESS temperature is reached, plus five (5) degrees.

**NOTE: If the temperature displayed during this test reads 195, the sensor circuit is not functioning correctly. Check to be sure that all the connections to the sensor and the microprocessor control until are correct. If these seem correct, check sensor and control unit and replace if necessary.**

e. Heater relay will open, DRYING light will go out. COOLING and PERM PRESS lights will be lit.
f. After an additional fifty (50) seconds the COOLING light will go out, motor relay will open, START light will be lit and PC01 will again appear on the display.
g. Slide right program switch number 1 down for normal operation.


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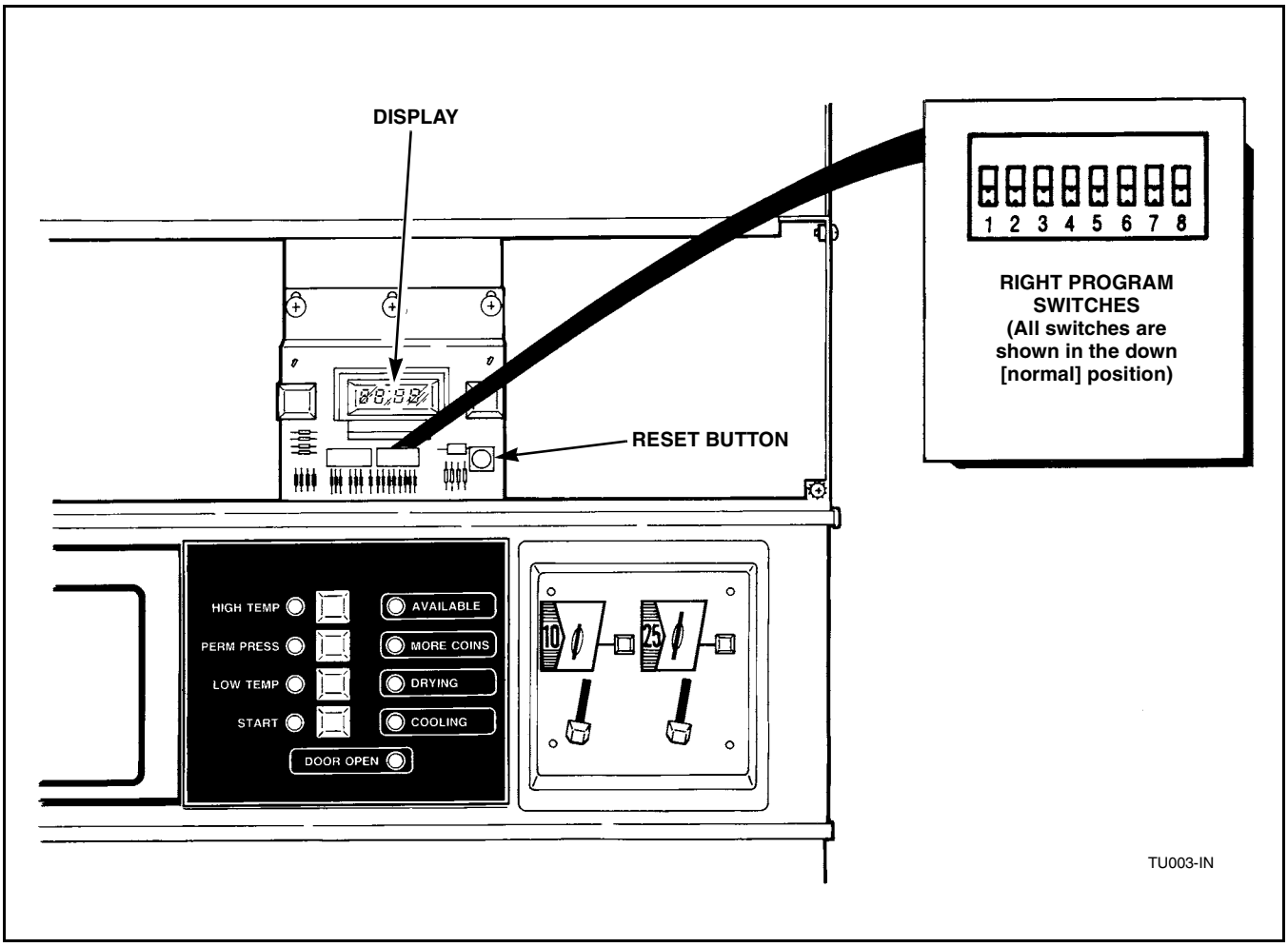


Figure 47


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## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 94. DIAGNOSTIC MODE (1ST GENERATION ONLY)

**NOTE: Use the plastic programming stylus (supplied with tumbler) or equivalent when sliding the program switch lever up or down.**

a. Unlock and open access door. Refer to *Figure 1*.
b. Slide the right program switch levers 1, 4 and 6 up, refer to *Figure 48*, all the other switches must be down. This mode allows you to check out the push buttons, beeper and program code on the display.

**NOTE: When the tumbler control is programmed into this mode, the display will show the programming code PC01.**

c. One by one, press the HIGH TEMP, PER PRESS, LOW TEMP, and START buttons in. You will heat a short “beep” after each button is pressed and the corresponding light will be lit.
d. Slide the right program switch number 4 down and slide right program switch number 7 up. Refer to *Figure 48*. Switches 1, 6 and 7 must be up and all other switches must be down.

**NOTE: When the tumbler control is programmed into this mode and with the door open, all segments and decimal points in the display will be lit, showing 88:88, and all lights on the control panel will be lit.**

e. Slide the right program switches 1, 6 and 7 down to clear display. AVAILABLE and DOOR OPEN lights will be lit. Close door and DOOR OPEN light will go out.


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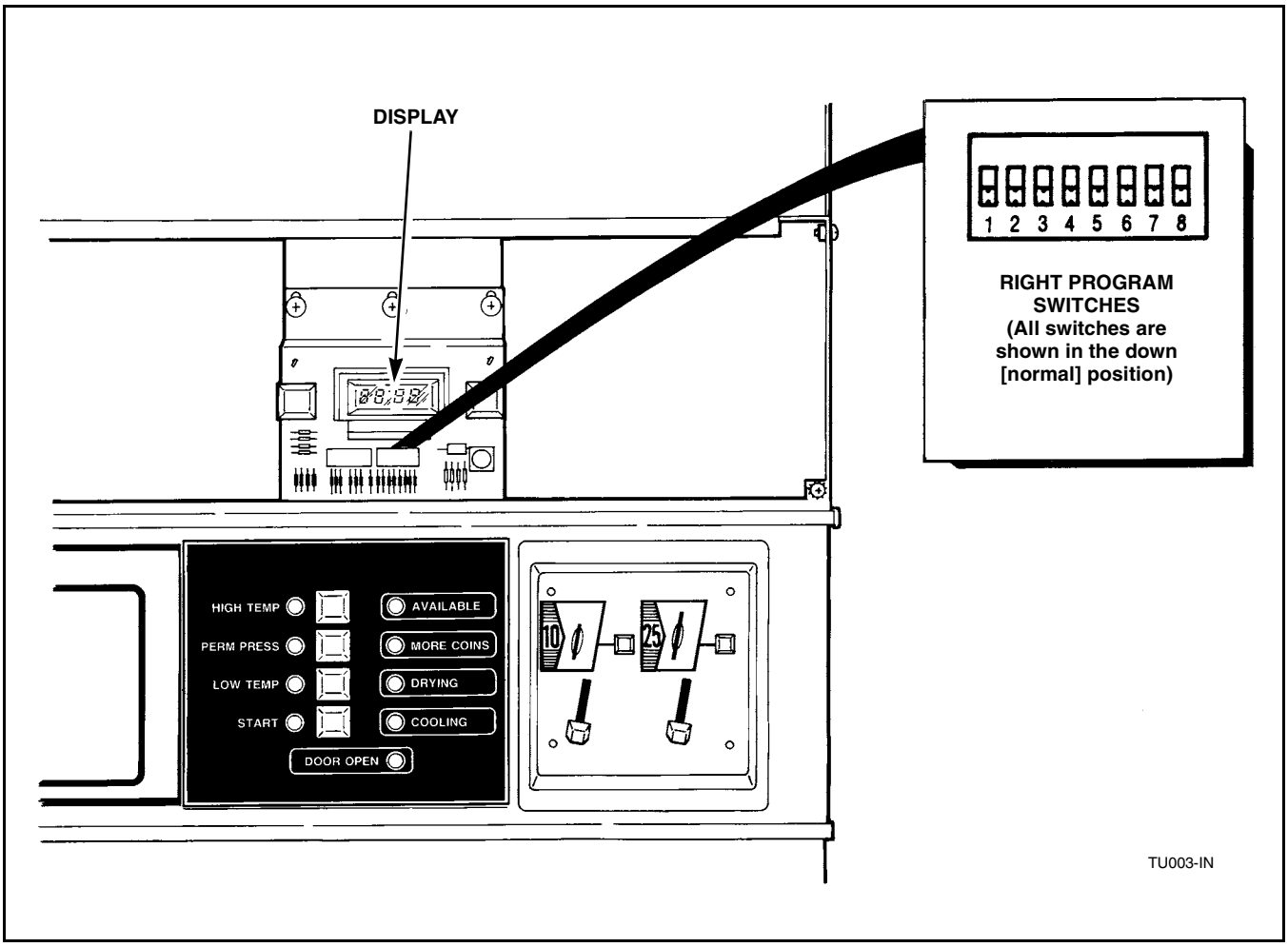


Figure 48


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# Section 8
# Gas Flow and Gas Valve Operation

**WARNING**

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

## 95. IGNITION SYSTEM FEATURES

### Momentary Power Interruption

Upon resumption of power, flame sensor contacts will still be open, permitting secondary valve to open. However, with the secondary coil in the circuit, the booster coil cannot draw enough current to open the split-coil valve. When flame sensor contacts do reclose, the secondary valve will close, and the burner system will be in the normal pre-ignition circuit.

### Flame Sensor

In case of flame failure, the flame sensor contacts will reclose in about 45 seconds. This will close the secondary valve and the burner system will be in the normal pre-ignition circuit.

### Ignition Failure

If flame is not established as flame sensor contacts open, secondary valve will remain open until flame sensor contacts open. Flame sensor will continue to recycle the igniter and secondary valve (about once per minute) until ignition is made or tumbler is turned off.


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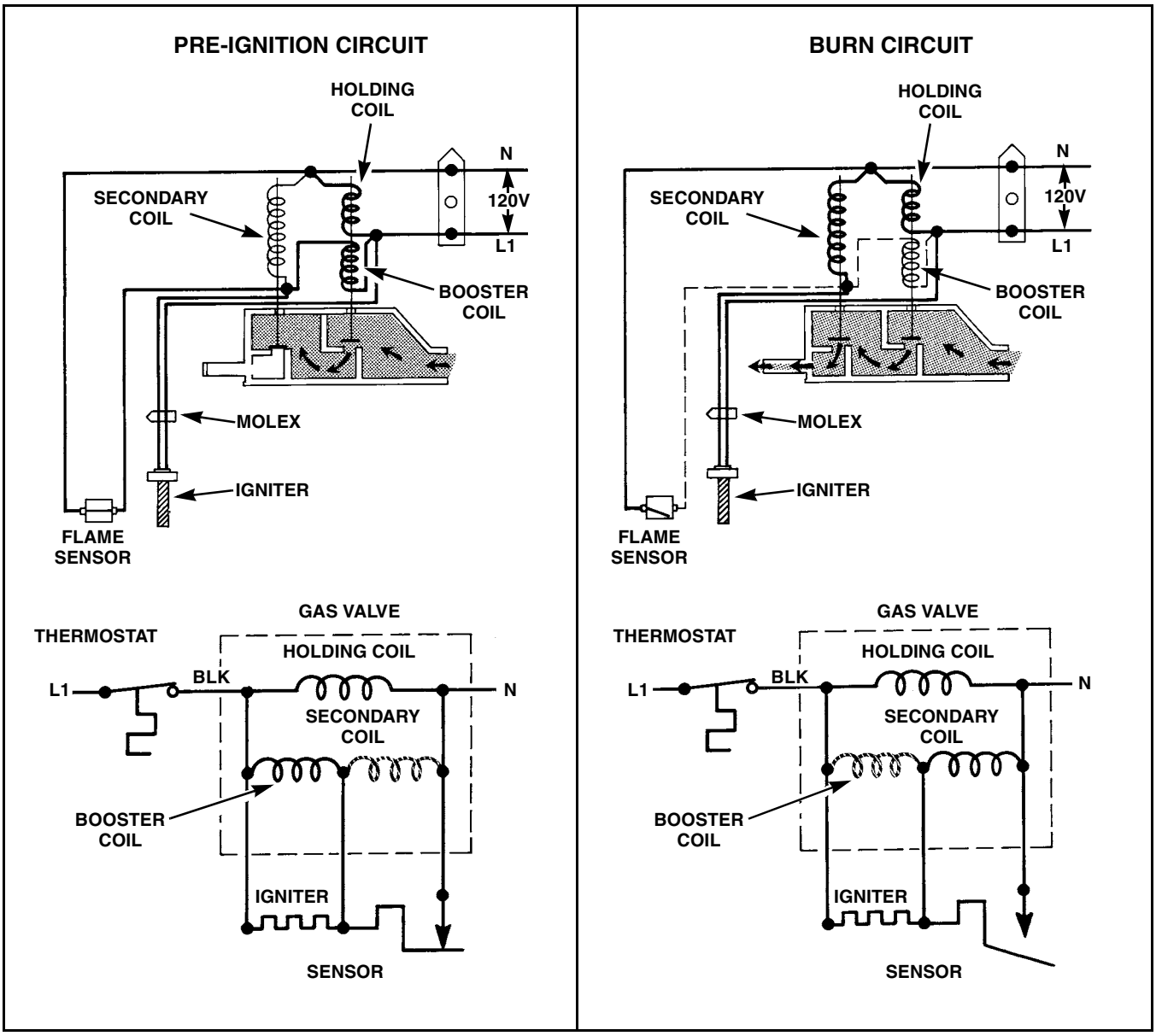


Figure 49


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